

REPORT NO. CG-D-78-77

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78-11-06-019

**COST EFFECTIVENESS STUDY OF
WASTEWATER MANAGEMENT SYSTEMS FOR
SELECTED U.S. COAST GUARD VESSELS**

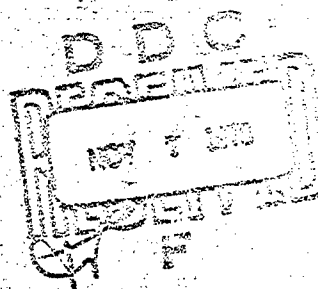
Volume VI - Mission Profiles of Selected U.S. Coast Guard Vessels

Sidney Orbach

**BRADFORD NATIONAL CORPORATION
1780 Broadway
New York, N.Y. 10019**



February 1977



FINAL REPORT

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**PREPARED FOR
U.S. DEPARTMENT OF TRANSPORTATION
UNITED STATES COAST GUARD
OFFICE OF RESEARCH AND DEVELOPMENT
WASHINGTON, D.C. 20590**

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Technical Report Documentation Page

1. Report No. 19 NAUSCG D-78-77	2. Government Session No.	3. Recipient's Catalog No.
4. Title and Subtitle 6 COST EFFECTIVENESS STUDY OF WASTEWATER MANAGEMENT SYSTEMS FOR SELECTED U.S. COAST GUARD VESSELS Volume VI: Mission Profiles of Selected U.S. Coast Guard Vessels Vol. VI 1060961	5. Report Date 11 February 1977 132067	6. Performing Organization Code
7. Author 8 Sidney Orbach	8. Performing Organization Report No.	9. Work Unit No. (TRAIS)
10. Performing Organization Name and Address BRADFORD NATIONAL CORPORATION 1700 Broadway New York, N. Y. 10010 410928	11. Contract or Grant No. 15 DOT-CG-52185-A	12. Type of Report and Period Covered 9 FINAL REPORT
12. Sponsoring Agency Name and Address U. S. Dept. of Transportation U. S. Coast Guard, Office of Research and Development Washington, D. C. 20590	13. Sponsoring Agency Code G-DOE-1/TP54	
13. Supplementary Notes Volume VI of a six volume report. Volume III has been published in six parts.		
16. Abstract <p>The operations of six U. S. Coast Guard vessels within and beyond restricted waters (within 3 miles from shore or on inland bodies of water) were analyzed in order to determine parameters which affect the design and operating costs of shipboard wastewater management systems.</p> <p>The maximum holding time (i. e., the longest continuous time within restricted waters) is a design parameter which affects equipment sizing. The system utilization factor and number of mode changeover cycles (from primary to overboard or pier-side) affect operating costs. The latter two parameters were derived respectively from an analysis of the fraction of time the vessel is within restricted waters and the number of crossings of the three-mile limit as well as the number of shore dockings.</p> <p>Data for the analysis was obtained from visits to the vessels and examination of the logs. From a study of the recorded vessel operations and activities (buoys tended, fisheries patrol, search and rescue, shore dockings, etc.), reference to navigation maps and the assistance of vessel personnel, every sortie was analyzed in terms of its relevant characteristics namely, holding times, times beyond restricted waters, number of 3-mile crossings, and shore dockings. The lists of sortie holding times and times beyond restricted waters constituted basic data which was subjected to further computer-aided statistical analyses, including confidence limits on the maximum holding time for each vessel.</p> <p>Prior to data collection and analysis, pertinent guidelines and assumptions which have a significant effect on the analysis were established. These included the assumptions that waste receiving facilities would be available at the vessels' home port and at a yard only, and that as soon as the vessel crosses the 3-mile limit, the wastewater management system is changed to operate in the overboard mode.</p>		
17. Key Words Emission Standards Marine Sanitary Devices Mission Profiles MSD Pollution Abatement Restricted Waters Utilization Factors Wastewater Management Systems		18. Distribution Statement Document is available to the U. S. public through the National Technical Information Service, Springfield Virginia 22161
19. Security Classif. (of this report) UNCLASSIFIED	20. Security Classif. (of this page) UNCLASSIFIED	21. No. of Pages 204
22. Price		

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Contract No. DOT-CG-52180-A

ACKNOWLEDGEMENTS

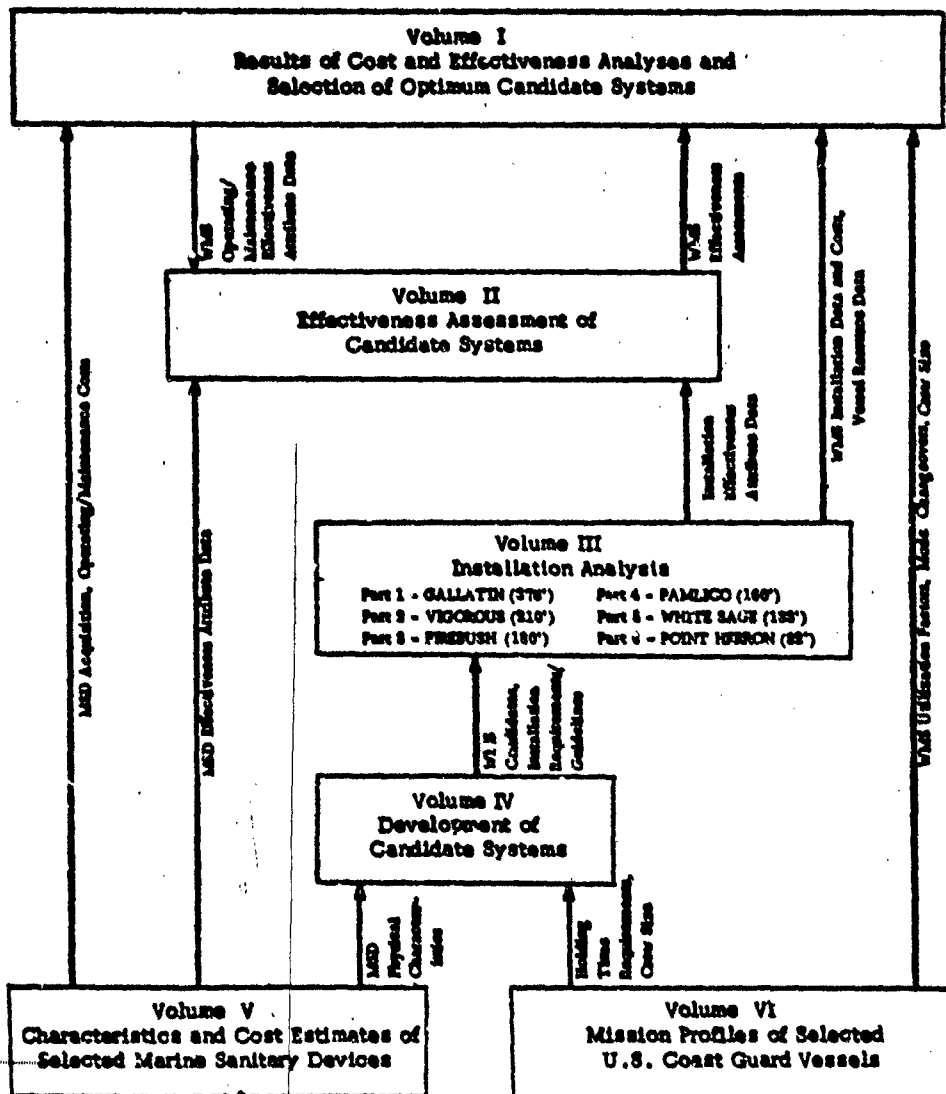
This study was conducted under the technical direction of Mr. Thomas S. Scarano of the Office of Research and Development, U.S. Coast Guard. His suggestions for the goals of the study profoundly influenced its course and resulted in a generalization of the mission profile data collection and analysis procedures. Mr. Scarano and Lt. Ed Magsig of the Office of Engineering, together with Mr. James A. White, of the Office of Research and Development provided valuable assistance in the formulation of the assumptions and guidelines governing this analysis.

The cooperation of the officers of U.S. Coast Guard Cutters GALLATIN (WHEC - 721), VIGOROUS (WHEC - 627), FIREBUSH (WLB - 393), WHITE SAGE (WLM - 544), POINT HERRON (WPB - 82318), PAMLICO (WLIC - 800), CLAMP (WLIC - 75306), and SHADBUSH (WLI - 74287) in making available the ship logs and assisting in the interpretation of the log entries to develop the necessary data for the mission profile analysis is greatly appreciated.

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PREFACE

The relationship among the volumes of the report is depicted below. This relationship does not convey all the information contained within each volume.



VESSEL	ANNUAL TIME SPENT IN PORTS			ANNUAL NUMBER OF NON-HOME DOCKINGS IN YARD	ANNUAL TIME SPENT UNDERWAY	TIME WITHIN 0-1 MILE LIMIT AND/OR IN NON-HOME PORT (Excluding Week)			HOLDING TIME			TIME BEYOND RESTRICTED WATERS																										
	HOME		NON-HOME			3-MILE LIMIT	TIME WITHIN 3-MILE LIMIT	TIME WITHIN 0-1 MILE LIMIT AND/OR IN NON-HOME PORT (Excluding Week)	TIME BEYOND RESTRICTED WATERS	TIME WITHIN 0-1 MILE LIMIT AND/OR IN NON-HOME PORT (Excluding Week)	TIME BEYOND RESTRICTED WATERS	TIME WITHIN 0-1 MILE LIMIT AND/OR IN NON-HOME PORT (Excluding Week)	TIME BEYOND RESTRICTED WATERS																									
	% of Total	Hours												% of Total	Hours	% of Total	Hours	% of Total	Hours																			
																				At Home Port (%)	At Home Port (Hrs)	At Home Port (%)	At Home Port (Hrs)															
																								At Home Port (%)	At Home Port (Hrs)	At Home Port (%)	At Home Port (Hrs)											
GALLATIN (170')	4556.5	32.0	768.5	0.8	39	50	384.0	0.9	2371.0	29.3	72	205.0	2.0	0.0	979.5	11.0	97.5	0.25	46	89.13	2366.0	27.0	90.0					430.0	0	100	30	93.33	100-200	3	3.34	200-300	1	2.77
VIGOROUS (210')	4939.0	56.2	334.0	4.1	32	24	202.0	11.0	2464.0	20.6	30	132.2	1.7	0.0	406.2	5.6	172.0	0.50	28	90.32	2351.0	26.5	94.0	353.0	0	100	4	24.67	100-200	4	24.67	200-300	2	13.33	300-353	3	20.00	M = 15, u = 154.0, σ = 190.9
FINEBUSH (180')	5362.0	72.6	377.2	4.3	305	20	240.0	0.8	1252.0	10.2	60	840.7	9.0	60.7	1237.0	14.1	377.0	0.75	134	99.25	302.1	4.5	31.3	99.3	0	100	0	0	0	0	0	0	0	0	0	M = 34, u = 11.5, σ = 16.5		
WHITE BAGE (130')	7519.4	35.0	290.7	3.2	161	21	216.0	2.5	743.9	8.5	24	602.2	7.9	93.0	978.0	11.1	65.5	0.15	90	90.63	51.7	0.6	6.5	5.0	0	100	0	0	0	0	0	0	0	0	0	M = 11, u = 3.0, σ = 0.7		
POINT HEBRON (82')	7030.4	88.4	91.5	1.0	91	2	400.0	5.5	360.0	4.1	92	79.5	0.8	19.7	162.0	1.0	99.0	0.25	112	70.12	107.5	3.3	90.0	22.5	0	100	17	33.05	5-10	17	29.31	10-15	9	15.52	15-23	1	1.72	M = 52, u = 6.2, σ = 4.5
PAMBLICO (160') New County	5272.3	71.6	0	0	65	0	0	0	2405.7	20.4	0	2406.7	20.4	100	2471.1	28.2	455	0-100	39	73.33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	M = 45, u = 77.5, σ = 86.9

(1) Combined data from SHADASH and CLAMP (12-month average based on 17 months of data).

(2) First mixed data for PAMICO (18% increase in underway time).

(3) Weighted average of 284 and 216 hours over 15-month period. Weighted difference of 120 hours added to Col. 1.

- (3) 12-month average based on 8 months of data.
- (4) 12-month average based on 15 months of data.
- (5) Arrivals or departures.
- (6) 12-month average based on 8 months of data.
- (7) Included yard dockings.
- (8) Used for estimating the number of VHS suitable to construct dikebanks made of compacted soil.

(2) No time spent beyond restricted waters.

(3) Subsidishment (NYA - Scheduled Yard Availability)

(8) Lower 95% confidence limit on the minimum waiting time.

(10) Used for WMS utilization factor.

1. The first part of the paper is devoted to the study of the properties of the function $f(x)$ defined by the equation

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100

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METRIC CONVERSION FACTORS

Approximate Conversions to Metric Measures

Symbol	When You Know	Multiply by	To Find	Symbol
LENGTH				
in	inches	2.5	centimeters	cm
ft	feet	30	centimeters	cm
yds	yards	0.9	meters	m
mi	miles	1.6	kilometers	km
AREA				
sq in	square inches	6.5	square centimeters	cm ²
sq ft	square feet	0.09	square meters	m ²
sq yds	square yards	0.8	square meters	m ²
sq mi	square miles	2.6	square kilometers	km ²
acres	acres	0.4	hectares	ha
MASS (weight)				
oz	ounces	28	grams	g
lb	pounds	0.45	kilograms	kg
short tons (2000 lb)	short tons	0.9	tonnes	t
VOLUME				
teaspoons	teaspoons	5	milliliters	ml
tablespoons	tablespoons	15	milliliters	ml
fluid ounces	fluid ounces	30	milliliters	ml
cups	cups	0.24	liters	l
pints	pints	0.47	liters	l
quarts	quarts	0.96	liters	l
gallons	gallons	3.8	liters	l
cubic feet	cubic feet	0.03	cubic meters	m ³
cubic yards	cubic yards	0.76	cubic meters	m ³
TEMPERATURE (exact)				
°F	Fahrenheit temperature	5/9 (after subtracting 32)	Celsius temperature	°C

* 1 in = 2.54 exactly. For other exact conversions and more data and tables, see NIST Spec. Publ. 280, Units of Weight and Measure, Price \$12.95, SD Catalog No. C13.11.280.

Approximate Conversions from Metric Measures

Symbol	When You Know	Multiply by	To Find	Symbol
LENGTH				
mm	millimeters	0.4	inches	in
cm	centimeters	0.4	inches	in
m	meters	1.1	yards	yds
km	kilometers	0.6	miles	mi
AREA				
cm ²	square centimeters	0.16	square inches	sq in
m ²	square meters	1.2	square yards	sq yds
km ²	square kilometers	0.4	square miles	sq mi
ha	hectares (10,000 m ²)	2.5	acres	acres
MASS (weight)				
g	grams	0.005	ounces	oz
kg	kilograms	2.2	pounds	lb
t	tonnes (1000 kg)	1.1	short tons	short tons
VOLUME				
ml	milliliters	0.04	fluid ounces	fl oz
l	liters	1.06	cups	cups
l	liters	0.26	quarts	qt
m ³	cubic meters	35	cubic feet	cu ft
m ³	cubic meters	1.3	cubic yards	cu yds
TEMPERATURE (exact)				
°C	Celsius temperature	0.5 (then add 32)	Fahrenheit temperature	°F

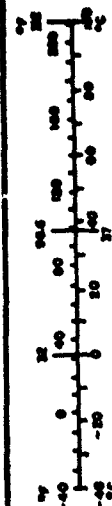


TABLE OF CONTENTS

	<u>Page</u>
ACKNOWLEDGEMENTS	iii
PREFACE	iv
SUMMARY OF MISSION PROFILE CHARACTERISTICS	v
METRIC CONVERSION FACTORS	vi
INTRODUCTION	1
OBJECTIVES	1
SCOPE OF MISSION PROFILE STUDY	2
ASSUMPTIONS	2
Restricted Waters	2
Waste Receiving Facilities	4
WMS Operation Within and Beyond Restricted Waters	4
Validity, Applicability and Generality of the Data	5
Vessel Holding Time Requirements	5
APPROACH	8
Data Acquisition and Reduction	8
Sortie Characteristics	10
Annualization of Data and Results	15
Statistical Analysis of Data	18
DEFINITIONS	19
Bravo Status	19
Charlie Status	19
Holding Times	19
Refurbishment	20
Scheduled Yard Availability	20
Sortie	20
Times Beyond Restricted Waters	20
RESULTS FOR GALLATIN (378')	21
SUMMARY OF MISSION PROFILE CHARACTERISTICS	22
HOLDING TIMES	23
List (by month) of Sortie Holding Times	23
Frequency Table	24
Histogram	25
Cumulative Distribution	26
Confidence Limits on Maximum Holding Time	27

TABLE OF CONTENTS (Cont'd)

	<u>Page</u>
TIMES BEYOND RESTRICTED WATERS	28
List (by month) of Times Beyond Restricted Waters	28
Frequency Table	29
Histogram	31
Cumulative Distribution	31
DETAILED VESSEL MISSION PROFILE DATA	32
DETAILED SORTIE CHARACTERISTICS	44
RESULTS FOR VIGOROUS (210')	47
SUMMARY OF MISSION PROFILE CHARACTERISTICS	48
HOLDING TIMES	49
List (by month) of Sortie Holding Times	49
Frequency Table	50
Histogram	51
Cumulative Distribution	52
Confidence Limits on Maximum Holding Time	53
TIMES BEYOND RESTRICTED WATERS	54
List (by month) of Times Beyond Restricted Waters	54
Frequency Table	55
Histogram	56
Cumulative Distribution	57
DETAILED VESSEL MISSION PROFILE DATA	58
DETAILED SORTIE CHARACTERISTICS	70
RESULTS FOR FIREBUSH (180')	72
SUMMARY OF MISSION PROFILE CHARACTERISTICS	73
HOLDING TIMES	74
List (by month) of Sortie Holding Times	74
Frequency Table	75
Histogram	76
Cumulative Distribution	77
Confidence Limits on Maximum Holding Time	78

TABLE OF CONTENTS (Cont'd)

	<u>Page</u>
TIMES BEYOND RESTRICTED WATERS	79
List (by month) of Times Beyond Restricted Waters	79
Frequency Table	80
Histogram	81
Cumulative Distribution	82
DETAILED VESSEL MISSION PROFILE DATA	83
DETAILED SORTIE CHARACTERISTICS	103
RESULTS FOR PAMLICO (160')	110
SUMMARY OF MISSION PROFILE CHARACTERISTICS	111
HOLDING TIMES	112
List (by month) of Sortie Holding Times	112
Frequency Table	113
Histogram	114
Cumulative Distribution	115
Confidence Limits on Maximum Holding Time	116
DETAILED VESSEL MISSION PROFILE DATA FOR	
SHADBUSH (74')	117
DETAILED SORTIE CHARACTERISTICS FOR SHADBUSH (74')	132
DETAILED VESSEL MISSION PROFILE DATA FOR	
CLAMP (75')	136
DETAILED SORTIE CHARACTERISTICS FOR CLAMP (75')	139
RESULTS FOR WHITE SAGE (133')	140
SUMMARY OF MISSION PROFILE CHARACTERISTICS	141
HOLDING TIMES	142
List (by month) of Sortie Holding Times	142
Frequency Table	143
Histogram	144
Cumulative Distribution	145
Confidence Limits on Maximum Holding Time	146
TIMES BEYOND RESTRICTED WATERS	147
List (by month) of Times Beyond Restricted Waters	147
Frequency Table	148
Histogram	149
Cumulative Distribution	150

TABLE OF CONTENTS (Cont'd)

	<u>Page</u>
DETAILED VESSEL MISSION PROFILE DATA	151
DETAILED SORTIE CHARACTERISTICS	161
RESULTS FOR POINT HERRON (82')	165
SUMMARY OF MISSION PROFILE CHARACTERISTICS	166
HOLDING TIMES	167
List (by month) of Sortie Holding Times	167
Frequency Table	168
Histogram	169
Cumulative Distribution	170
Confidence Limits for Maximum Holding Time	171
TIMES BEYOND RESTRICTED WATERS	172
List (by month) of Times Beyond Restricted Waters	172
Frequency Table	173
Histogram	174
Cumulative Distribution	175
DETAILED VESSEL MISSION PROFILE DATA	176
DETAILED SORTIE CHARACTERISTICS	191

LIST OF TABLES

<u>Table</u>	<u>Page</u>
1 Vessels Included in Mission Profile Study	3
2 Relation Between Maximum and All Other Holding Times . .	7
3 Detailed Vessel Mission Profile Data	9

INTRODUCTION

OBJECTIVES

There are two essential reasons for analyzing vessel mission profiles in the context of this cost effectiveness study of wastewater management systems (WMS), namely:

- . **Determination of WMS design parameters.** This information is derived from an analysis of the vessel holding time requirements, i.e., the maximum continuous time that the vessel will not be permitted to discharge wastewaters (either overboard or to a shoreside receiving facility). The maximum holding time associated with a vessel is an important WMS design parameter which is used (in conjunction with other considerations) to determine the following:
 - .. The sizing of candidate WMS equipments (holding tanks, pumps, etc.)
 - .. The equipment configuration of candidate WMS, i.e., the number of units of each type required
- . **Determination of WMS utilization characteristics.** This information is used in estimating WMS operating and maintenance costs as a function of vessel. Specifically, the WMS utilization characteristics of interest are as follows:
 - .. WMS utilization factors, i.e., the percentage of total annual time that the WMS subsystems are in use
 - .. The number of WMS mode changeover cycles per year (primary to overboard and plierside to primary)
 - .. Vessel yard availability, to the extent that they affect WMS utilization

SCOPE OF MISSION PROFILE STUDY

This mission profile study is limited to the specific vessels and operational conditions indicated in Table 1. It is assumed that the data obtained is typical for the vessels operating from the home ports indicated and its associated geographical region. However, no attempt is made to extrapolate results to other vessels or operational conditions. Specifically, it should not be assumed that the results of this mission profile study are applicable under the following circumstances:

- . Other classes of vessels
- . Other vessels than those analyzed in the same class
- . The vessels analyzed when operating in different geographical regions than those for which data was collected

Further data collection and statistical analysis would be required in order to generalize the results of this study for the above or other circumstances.

ASSUMPTIONS

Several assumptions and guidelines were used in the course of this vessel mission profile study. The pertinent assumptions which affected the manner in which data was collected and analyzed as well as the results obtained are discussed below.

Restricted Waters

For purposes of this study, restricted waters are defined as the region of water within three (3) miles of any shoreline of the continental United States, as well as all inland waters (e.g., lakes, rivers, bays, etc.). It is noted that in certain geographical regions (e.g., those involving islands close to shore or close to one another, shoreline contours which have land projections close to one another, etc.) the determination of the 3-mile limit can be quite involved. Under such circumstances, since it is not practical for a navigator to continuously check for the presence of

Table 1
VESSELS INCLUDED IN MISSION PROFILE STUDY

VESSEL	CLASS	TYPE	CREW SIZE	HOME PORT	MISSION PROFILE DATA	
					Time Interval Studied	Source of Data
GALLATIN (376')	WHEC-721 Hamilton (376') Class	High Entrance Cutter	152	Governor's Island, New York	12 Months 7/1/74 - 6/30/75	Ship's Log
VEGOCIOUS (216')	WMEC-627 Resolute (210') B Class	Medium Endurance Cutter	60	New London, Conn.	12 Months 8/1/74 - 7/31/75	Summary Log
FRESHUSH (108')	WLB-383 Basswood (180') C Class	Boat Tender (Seagoing)	50	Governor's Island, New York	12 Months 8/1/74 - 7/31/75	Summary Log
PAMLIKO (108') New Construction Based on Data from	WLJC-800	Boat and Construction Tender (Inland)	13	New Construction (Intended for Operation in Depot Corps, Texas)	Represented by data from SHADRUSH and CLAMP 7 Months 6/1/74-10/31/75	Summary Log
SHADRUSH (74')	WLJ-74257 Clematis (74') Class	Boat Tender (Inland)	9	New Orleans, La. (Transferred to Galveston, Texas)	18 Months 6/1/74 - 8/31/75	Summary Log
CLAMP (75')	WLJC - 75206 Clamp (75') Class	Construction Tender (Inland)	9	Galveston, Texas (Transferred to New Orleans, La.)	8 Months 8/22/75 - 10/31/75	Summary Log
WHITE SAGE (123')	WLM-544 White Sammac (123') Class	Boat Tender (Coastal)	21	Woods Hole, Mass.	8 Months 8/1/74 - 7/31/75	Ship's Log
POINT HERBON (82')	WFB-82316 Polar (82') C Class	Patrol Boat (Small)	8	Bay Shore, New York (Five Islands)	15 Months 8/1/73 - 7/31/74	Summary Log

the vessel within restricted waters during vessel operations, estimates have to be made.

Waste Receiving Facilities

Wastewater receiving facilities are assumed to be available at the vessel's home port and at a yard only. Waste off-loading facilities are assumed to be unavailable for the vessel at all other non-home ports regardless of type, i.e., Coast Guard, Navy, municipal, etc.

All calculations are based on the assumption that when the vessel is in its home port or at a yard, it is connected to the waste receiving facility but when it is in any other non-home port (or within restricted waters) it cannot discharge wastewaters and therefore must treat or hold them. It is noted that pierside waste receiving facilities were assumed to be available at a vessel's home port even though they were not present or operational during the time of the study (e.g., Governor's Island, New York).

WMS Operation Within and Beyond Restricted Waters

All results are computed on the basis of the following assumptions with respect to WMS operation:

- . Operation of WMS subsystems which are necessary to avoid discharge of wastewaters (i.e., the primary mode) is initiated as soon as the vessel enters restricted waters or leaves its home port and continues until the vessel either leaves restricted waters or arrives at its own home port or at a yard. WMS operation in the primary mode continues if the vessel is at any non-home port except a yard.
- . As soon as the vessels arrive at its own home port or at a yard, it is connected to a pierside waste receiving facility and WMS subsystem operation is changed to the pierside discharge mode.

WMS operation in the overboard discharge mode is initiated as soon as the vessel leaves restricted waters and continues until it reenters restricted waters.

It is noted that in practice it may not be practical to operate a WMS in strict conformance to the above assumptions. As an example, when a vessel leaves and then reenters restricted waters after a short time duration, it may not be worthwhile to change the WMS operation to the overboard mode and then back to the primary mode. However, since any choice of a time interval which is considered to be "short enough" to warrant forgoing such mode changeovers is argumentative, no attempt was made to choose such a time interval for vessel operation beyond restricted waters.

It is also noted that in practice vessel operations may be modified slightly from the manner indicated by the mission profile data in order to facilitate WMS operation. As an example, the mission profile data may indicate that a vessel has left and reentered restricted waters after a very short time interval. However, if the vessel were equipped with a WMS which has a holding tank and the holding tank was full when the vessel left restricted waters, the vessel may remain beyond restricted waters for a longer period of time than indicated by mission profile data in order to facilitate emptying the holding tank. As another example, if a holding tank becomes full when a vessel is within restricted waters (or at a non-home port other than a yard), it may transit out of the restricted waters sooner than indicated by the mission profile data in order to pump out the holding tank.

Validity, Applicability and Generality of the Data

As discussed earlier (see Scope) this mission profile study is limited to the specific vessels included in this study and operating in the geographical area for which data was obtained.

The data and the results obtained from an analysis of this data are based on operational information from vessels which currently are not outfitted with the candidate wastewater management systems included in this study. Reference has been made above to the possibility that if a vessel were equipped with certain types of WMS, vessel operations might be modified to some extent in order to accommodate WMS operational requirements or to make such operations more convenient.

In addition to the above two cautions and limitations regarding the applicability and generality of the data and the results, a question arises with respect to validity of the data taken over a limited period of time to represent and characterize that vessel for all time. All calculations and results of this study are based on the assumption that the data for a given vessel obtained is valid and representative and hence characterize the vessel.

Vessel Holding Time Requirements

As previously noted (see Objectives), the holding time requirement for a vessel is an important WMS design parameter. A basic question arises in connection with the choice of holding time goals for each vessel, since the data indicates a wide distribution of holding times ranging, in some vessels, from relatively small numbers to relatively very large numbers.

For purposes of this study it was decided to base the holding time goal for a given vessel on the largest holding time encountered for that vessel, regardless of its prevalence in the data obtained, i.e., even if the maximum holding time occurred only once and is considerably higher than all other holding times (and in ordinary statistical analyses might be considered an outlier). It is noted that for some of the vessels included in this study, the maximum holding time is considerably out of range in comparison with the rest of the data. Table 2 shows the relation between the maximum holding time, the next smaller holding time and the percentage of all holding times excluding the maximum (i.e., the percentage of all holding times smaller than or equal to the next to the largest holding time).

Table 2
RELATION BETWEEN MAXIMUM AND ALL OTHER HOLDING TIMES

VESSEL	MAXIMUM HOLDING TIME (Hours)	ALL OTHER HOLDING TIMES	
		Next Smaller Holding Time (Hours)	% of All Holding Times Excluding the Maximum
GALLATIN (378')	97.5	88.0	98.21
VIGOROUS (210')	172.0	72.0	96.77
FIREBUSH (180')	277.9	54.0	99.26
PAMLICO (160')* New Construction	456.0**	228.0	97.78
WHITE SAGE (133')	65.5	62.0	96.88
POINT HERRON (82')	99.0	21.5	99.12

* Based on data from SHADBUSH (75') and CLAMP(75')

** Maximum holding time used for WMS design purposes is 501 hours, an increase of 10% to reflect anticipated longer holding time requirements as a result of more available space for stocking supplies.

The decision to use the maximum holding time for a given vessel as the holding time requirement for that vessel (which was then used as a WMS design parameter) is based on the following two considerations:

- . There is no provision in the law for deliberate violation of emission standards even a small percentage of the time. As a result, it is not reasonable to develop a WMS based on a design parameter which provides, with a priori knowledge for the violation of emission standards, even though such violations will occur on very rare occasions. This is to be distinguished from possible violations of emission standards due to either system failures or operator errors, since these have to be considered accidental rather than deliberate violations of emission standards.
- . Even if the above consideration was ignored, any choice for a vessel holding time goal based on any given percentile of all holding times other than 100% (which corresponds to the maximum holding time) is an argumentative decision which cannot be readily justified.

APPROACH

The procedures used during the course of this vessel mission profile study for data collection and analysis are discussed below.

Data Acquisition and Reduction

Data for this mission profile study was obtained from visits to the vessels included in the study. The source of data was either the ship's log or the summary log (see Table 1).. Assistance was obtained from vessel personnel in interpreting the data and making estimates when necessary. The basic data was recorded on a form similar to the one in the left hand side of Table 3. Data was recorded on a daily basis for each month.

Table 3

Sheet of

[illegible]

Dockings at a yard were indicated by footnotes and included in the home port columns, whereas the time spent at a yard were included in the non-home port column. This convention was adopted in order to conform to the assumptions regarding the availability of shoreside waste receiving facilities and in order to provide vessel mission profile parameters which can be readily used for estimating WMS operating and maintenance costs (i.e., WMS utilization factors and number of mode changeover cycles).

The information for the number of hours underway which were spent within the three (3) mile limit and the number of 3-mile crossings was obtained, with the assistance of vessel personnel, from the log entries of vessel activities (buoys tended, fisheries patrol, search and rescue, etc.) and reference to navigation maps. The time spent within restricted waters was often a composite figure which included two or more individual time intervals (i.e., transits in and out of restricted waters). Such times within restricted waters were split into its component time intervals on the basis of estimates and designated by footnotes.

The above information was then used to determine the sortie characteristics (see Definitions and following discussion) in the right hand side of the Table 3 and to prepare a detailed sketch of each sorties. This information was also used to prepare summaries of holding times and times beyond restricted waters, listed by month. These lists of holding times and times beyond restricted waters were used as the input data for the statistical calculations. A summary of vessel mission profile characteristics was also prepared from the data on the form in Table 3 for each vessel.

Sortie Characteristics

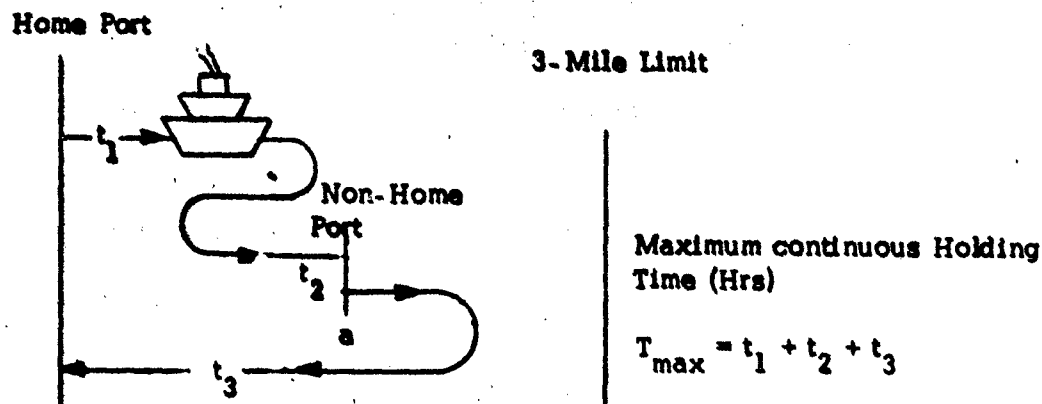
In order to develop the type of information necessary to formulate WMS design parameters and to estimate operating/maintenance cost, it is necessary to study sortie characteristics in some detail. Specifically, the sortie characteristics which are of interest are as follows:

- . Holding times, including:
 - .. The maximum holding time for each sortie.
 - .. The other sortie holding times.
- . Times beyond restricted waters for each sortie.
- . The number of 3-mile limit crossings.
- . The number of shore dockings at home port, non-home ports and yards.
- . The time spent at home port, non-home ports and at yards.

To facilitate the development of the necessary type of data, a sketch was prepared for each sortie. In addition, an attempt was made to group all sorties into a few general types. It was found that although each sortie is unique and therefore no one set of sortie types can completely characterize all sorties, it was possible to develop four sortie types with variable parameters (i.e., the number of 3-mile limit crossings, the number of pier dockings, etc.) to categorize all sorties encountered. On the mission profile data form in Table 3, the first column of the right hand portion of the form is used to designate the limits (i.e., beginning and end) of each sortie, the sortie type and the parameters associated with each sortie. The other three columns are used for entering, for each sortie, the maximum holding time, the other sortie holding times and the sortie times beyond restricted waters. It is noted that the sortie holding times and times beyond restricted waters are computed subject to the governing assumptions (see Assumptions). The four types of sorties used to categorize the vessel operations and their associated parameters are presented below.

TYPE I

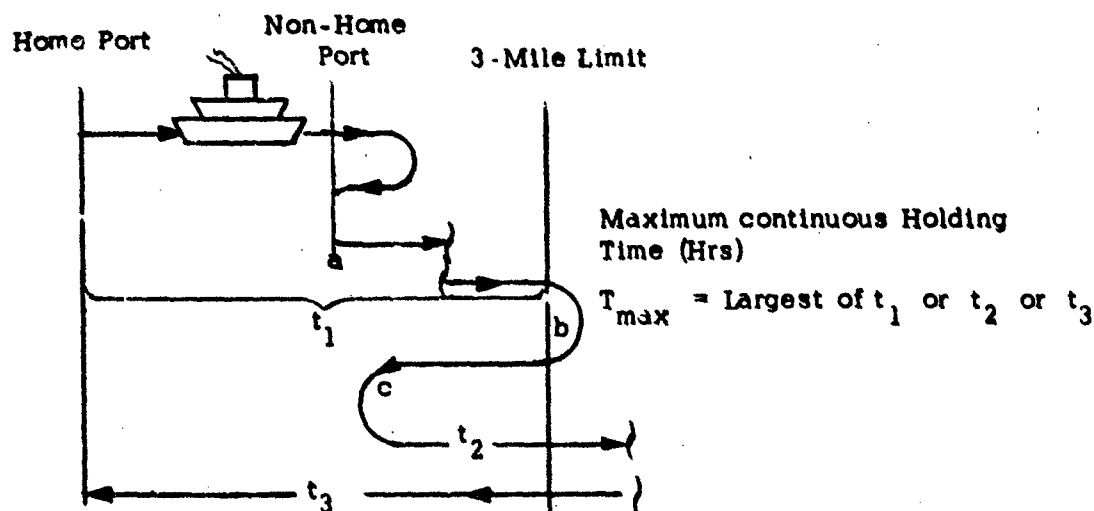
Vessel departs from home port, may dock at non-home port, may (within restricted waters) spend time at non-home port, departs from non-home port, performs all of its duties within restricted waters (inland waters and/or within 3-mile limit of established zone*) and return to home port, without having crossed the 3-mile limit.



* Restricted zone as indicated on navigation maps.

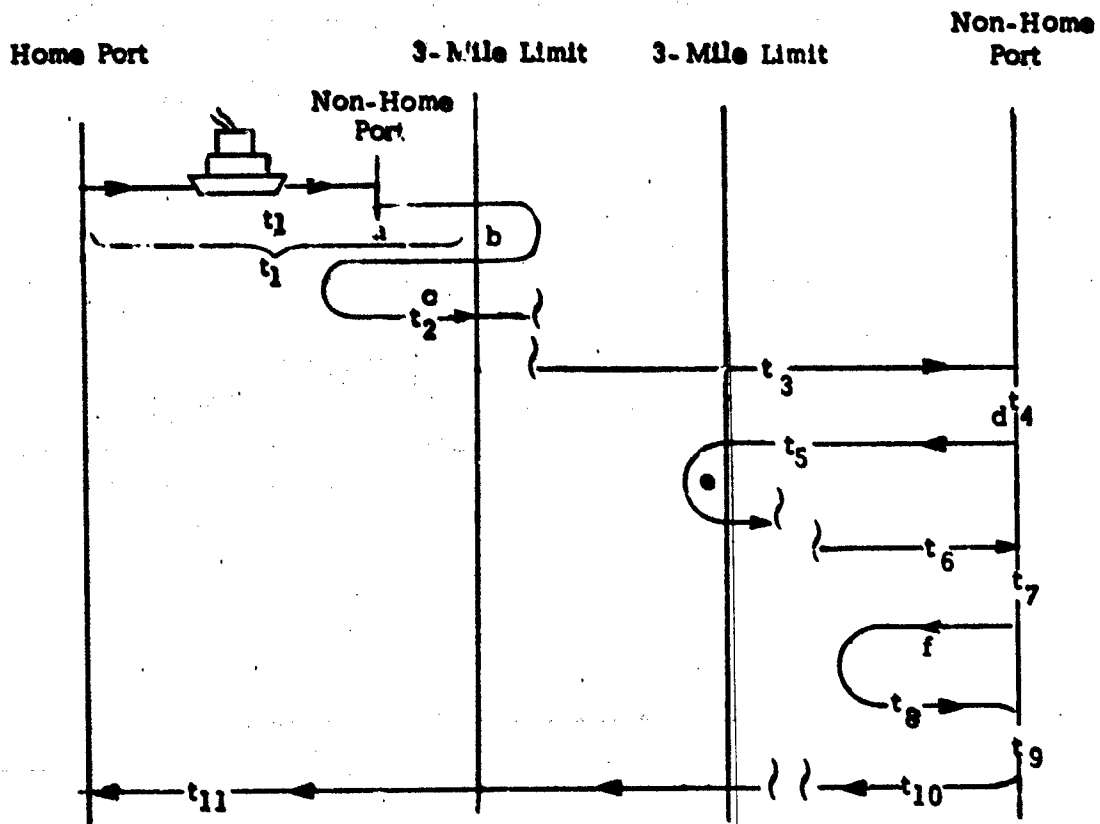
TYPE II

Vessel departs from home port, may dock at non-home port, may spend time at non-home port, departs from non-home port, performs some of its duties within 3-mile limit (it may repeat this process several times), crosses the 3-mile limit, performs additional duties (this may occur several times), and return to home port.



TYPE III

Vessel departs from home port, may dock at non-home port, may spend time at non-home port, departs non-home port, performs its duties, crosses 3-mile limit (possibly several times), transits to another non-home port crossing its 3-mile limit, docks at non-home port, spends time at non-home port, departs non-home port, performs its duties, possibly crosses 3-mile limit several times, returns to non-home port, spends time at non-home port, departs from non-home port, crosses 3-mile limit, performs its duties and return to home port.

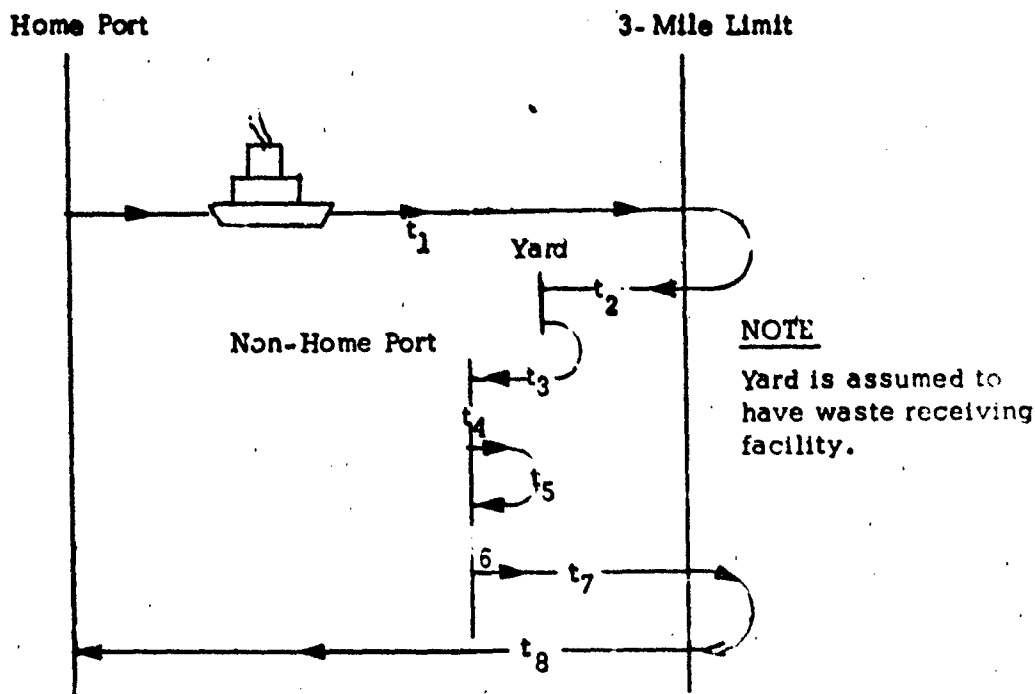


Maximum continuous Holding Time (Hrs)

$$T_{\max} = \text{Largest of } t_1 \text{ or } t_2 \text{ or } t_{11} \text{ or } (t_3 + t_4 + t_5 + \dots) \text{ or } (t_6 + t_7 + t_8 + t_9 + t_{10} + \dots)$$

TYPE IV

Vessel departs from home port, performs its duties, crosses 3-mile limit, performs more duties, crosses 3-mile limit and docks at yard. Vessel is overhauled or refurbished at yard, departs yard, transits to non-home port, docks at non-home port, spends time at non-home port, departs non-home port, performs its duties, returns to non-home port (performs this sequence several times), crosses 3-mile limit and returns to home port.



Maximum continuous Holding Time (Hrs)

$$T_{\max} = \text{Largest of } t_1 \text{ or } t_2 \text{ or } t_8 \text{ or } (t_3 + t_4 + t_5 + t_6 + t_7).$$

Annualization of Data and Results

As indicated in Table 1, the data collected for some of the vessels covered periods which were either less or more than a year. Since many of the desired results are required on an annual basis, it was necessary to prorate the data in order to obtain annualized results. The prorating procedure for the time spent by the vessel at various location is based on the actual number of hours in the given period covered by the data instead of the number of months in the period, due to the non-uniformity of the months. No attempt was made to prorate the time spent in a yard. This decision was adopted because the time a vessel spends in a yard is either scheduled in advance or is due to random failures (i.e., vessel refurbishment), for which there is no well defined basis for a prorating scheme. A problem arose in the case of the POINT HERRON (82') in which this procedure could not be strictly adhered to because two refurbishments of significantly different durations (384 and 216 hours) occurred during the time interval over which data was collected. The procedure used in this case was to obtain a weighted average yard time (480 hours) based on prorating the sum of the two refurbishment times (600 hours) over the time interval (15 months) over which data was taken (i.e., multiplying 600 by 12/15). The weighted difference of 120 hours was added to the home port figure. Annualization of the number of dockings and the number of 3-mile limit crossings was obtained by prorating on the basis of the number of months in the time interval over which data was collected.

The details of the calculations for annualizing the results for the WHITE SAGE (133'), the POINT HERRON (82') and the PAMLICO (160') are presented below.

WHITE SAGE (133')

8 months of data over the period 8/1/74-7/31/75 (for months 8, 10, 12/75 and 2, 4, 5, 6, 7/75)

8 Months	→	5,832 Hours (243 Days x 24 Hours/Day)
		- 216 Hours (Refurbishment)
		5,616 Hours

One Year	→	8,760 Hours (365 Days x 24 Hours/Day)
		- 216 Hours (Refurbishment)
		8,544 Hours

∴

Use $\frac{8,544}{5,616}$ for Annualization

Results

Vessel Location	Totals for 8-Month Period (Hours)	Annualized Totals (Hours)
In Home Port	4,942.5	7,519.4
In Non-Home Port	184.5	280.7
Underway	489.0	743.9
In Yard (Refurbishment)	216.0	216.0
Sum	5,832.0	8,760.0

POINT HERRON (82')

15 months of data over period 5/1/73-7/31/74

Yard time (Refurbishment) = 384 + 216 = 600 Hours

Yard time prorated for year = $60 \times \frac{12}{15} = 480$ Hours

(Balance of 120 hours added to home port time)

15 Months → 10,968 Hours (457 Days x 24 Hrs./Day)
 - 480 Hours (Refurbishment)
 10,488 Hours

One Year → 8,760 Hours (365 Days x 24 Hrs./Day)
 - 480 Hours
 8,280 Hours

∴

Use $\frac{8,280}{10,488}$ for Annualization

Results

Vessel Location	Totals for 15-Month Period (Hours)	Annualized Totals (Hours)
In Home Port	9,789.5 + 120 = 9,918.5	7,830.4
In Non-Home Port	116.0	91.6
Underway	453.5	358.0
In Yard (Refurbishment)	600.0	480.0
Sum	10,488.0	8,760.0

PAMLICO (160')

Based on data from SHADBUSH (74') and CLAMP (75')

17 Months of data over period 6/1/74-10/31/75

For SHADBUSH (74') - 15 Months 6/1/74-8/21/75

For CLAMP (75') - 2 Months 8/22/75-10/31/75

17 Months → 12,432 Hours (518 Days x 24 Hrs./Day)

12 Months → 8,760 Hours (365 Days x 24 Hrs./Day)

Use $\frac{8,760}{12,432}$ for Annualization

Results

Vessel Location	Totals for 17 Months (Hours)	Annualized Totals (Hours)
In Home Port	8,903.0	6,273.3
Underway	3,529.0	2,486.7
Sum	12,432.0	8,760.0

Since the plans for the PAMLICO (160') new construction vessel indicate more available space for stocking supplies than the vessels for which data were obtained, the underway time for this vessel was increased by 10% (to 2,735.3 hours), thus decreasing the time in home port by 10% (to 6,024.2 hours). These vessels operate primarily in inland waters and therefore no instances of visits to non-home ports were recorded. No visits to a yard occurred during the time interval over which data was taken.

Statistical Analysis of Data

The statistical analyses were performed with the aid of a computer, utilizing statistical analysis programs which were accessed through a terminal interconnected by telephone lines to an IBM 370 computer operating in a time sharing mode. The summaries of holding times and times beyond restricted waters, listed by month for each vessel, were used as the basic input data files for statistical analyses. The following computer printouts were obtained:

- . Frequency tables for holding times and times beyond restricted waters. The frequency tables provide the following types of information:
 - .. The unique time intervals (listed in ascending order).
 - .. The count of the number of occurrences of each unique time interval.
 - .. The relative frequency (% of total) of each unique time interval.
 - .. The cumulative count of all time intervals which are equal to or less than each unique time interval (in ascending order).
 - .. The cumulative relative frequency (cumulative % of total) of all time intervals equal to or less than each unique time interval (in ascending order).

- Histograms for holding times and times beyond restricted waters (based on ten cells and a convenient cell size).
- Cumulative distributions for holding times and times beyond restricted waters.
- Confidence limits on the maximum holding time for each vessel. Lower confidence limits for levels of 50, 75, 90, 95, and 99% were obtained. The output lists the lower and upper confidence bounds which are the smallest and largest percentage of all holding times that are expected to be smaller than the maximum holding time on a long-run basis. Since the maximum holding time was used as the lower limit for this calculation, 100% of the data are below this value and hence the upper confidence bound is 100%. This binomial confidence limit calculation is non-parametric, i.e., good for any distribution.

DEFINITIONS

The definitions of certain terms used in conjunction with this vessel mission profile study are given below.

Bravo Status

The time allowed for a vessel to get underway.

Charlie Status

The vessel is tied up for maintenance, usually at its own home port.

Holding Times

The continuous time intervals during which a vessel is in restricted waters and/or in any non-home port, other than a yard. The maximum Holding Time for a given vessel is the largest holding time encountered during the time period over which data was taken. During holding time intervals, wastewaters may not be discharged overboard and therefore have to undergo Treatment/Disposal by the vessel WMS (i.e., it must operate in the primary mode).

Refurbishment

Unscheduled vessel repairs which cannot be made at a vessel's home port and hence are made at a yard.

Scheduled Yard Availability

Time set aside for vessel maintenance and overhaul at a yard.

Sortie

The various vessel movements, i.e., the transits in and out of restricted waters, arrivals at and departures from ports, etc., associated with the normal operations of a vessel. For purposes of this study, a sortie is initiated when a vessel leaves its own home port or a yard (i.e., when it is disconnected from a shore waste receiving facility) and ends when the vessel arrives at its own home port or at a yard (i.e., when it is connected to a shore waste receiving facility).

Times Beyond Restricted Waters

The continuous time intervals during which a vessel is beyond restricted waters. When a vessel is beyond restricted waters, it may discharge wastewaters overboard (i.e., the WMS may operate in the overboard discharge mode).

GALLATIN (378')

Vessel Characteristic	Data
Class	WHEC - 721 Hamilton (378') Class
Type	High Endurance Cutter
Crew Size	152
Home Port	Governor's Island, New York
Mission Profile Data Source and Time Interval	From Ship's Log 12 Months 7/1/74-6/30/75

SUMMARY OF MISSION PROFILE CHARACTERISTICS

Vessel GALLATIN (378')

(One Year Average - July 1974-June 1975)

% of time in home port (4556.5 hours) -----	52.0
% of time in non-home port (768.5 hours) -----	8.8
% of time in yard* (864.0 hours) -----	9.9
% of time underway(2571.0 hours) -----	29.3
% of time within 0-3 mile limit (205.0 hours) -----	2.0
% of time outside restricted waters (2366.0 hours) -----	27.0
% of underway time within 0-3 mile limit -----	8.0
% of underway time outside restricted waters -----	90.0
Number of 3-mile crossings -----	72
Number of home port dockings -----	39
Number of non-home port dockings -----	51
Holding time (hours), i.e., time spent within 0-3 mile limit and/or in non-home port -----	973.5
% of time spent within 0-3 mile limit and/or in non-home port -----	11.0
Maximum holding time (hours), i.e., largest time interval within 0-3 mile limit and/or in non-home port) -----	97.5
Maximum continuous number of hours outside restricted waters -----	430.0

* Refurbishment

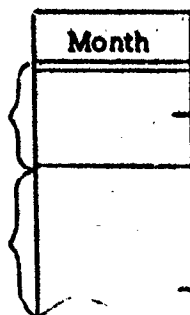
HOLDING TIMES

Vessel GALLATIN (378')

1974						1975					
July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June
9.0	4.0	76.0	5.0	75.0	2.0	2.0	8.5	57.5	9.0	97.5	7.0
1.75	2.0	23.5	12.5	3.0	2.0	2.0	1.0	2.5	2.0	1.5	14.0
1.75	4.0		2.0		2.0		1.0		4.0	26.5	16.25
	2.0		5.0		2.0					14.0	13.0
	2.0									88.0	7.0
	24.0									12.0	13.0
	2.0									12.5	61.0
	2.0										24.5
	2.0										20.0
	40.0 →									22.75 →	60.0
											60.5
											2.0
											4.0

Maximum holding times for sorties

All other sortie holding times



Holding time continues into next month

GALLATIN (378')

HOLDING TIMES

FREQUENCY TABLE

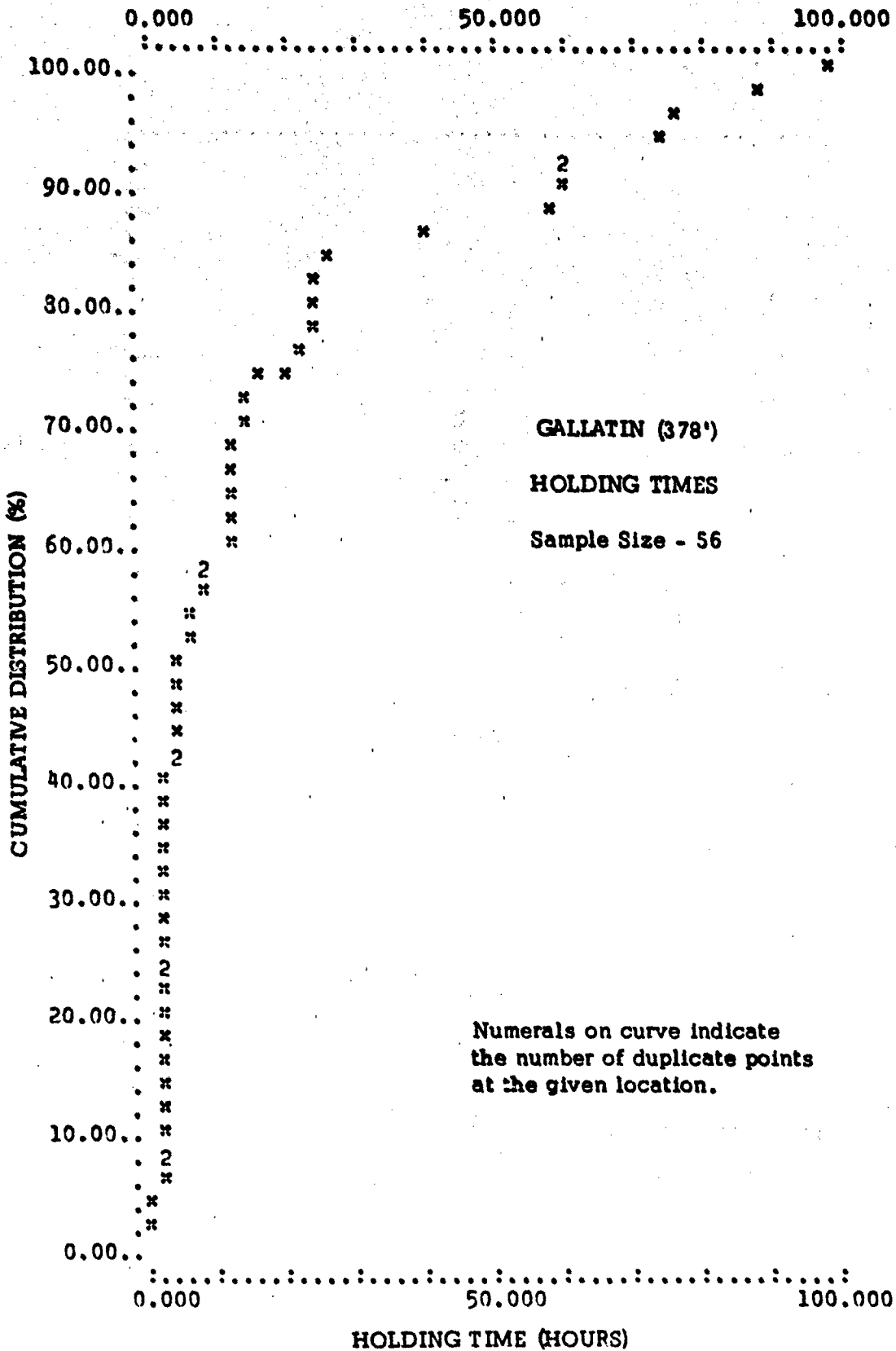
(1) CELL LOWER LIMIT	(2) FREQ	(3) REL FREQ	(4) CUM FREQ	(5) CUM REL FREQ
-----	-----	-----	-----	-----
1.0000	2	3.57	2	3.57
1.5000	1	1.79	3	5.36
1.7500	2	3.57	5	8.93
2.0000	15	26.79	20	35.71
2.5000	1	1.79	21	37.50
3.0000	1	1.79	22	39.29
4.0000	4	7.14	26	46.43
5.0000	2	3.57	28	50.00
7.0000	2	3.57	30	53.57
8.5000	1	1.79	31	55.36
9.0000	2	3.57	33	58.93
12.0000	1	1.79	34	60.71
12.5000	2	3.57	36	64.29
13.0000	2	3.57	38	67.86
14.0000	2	3.57	40	71.43
16.2500	1	1.79	41	73.21
20.0000	1	1.79	42	75.00
22.7500	1	1.79	43	76.79
23.5000	1	1.79	44	78.57
24.0000	1	1.79	45	80.36
24.5000	1	1.79	46	82.14
26.5000	1	1.79	47	83.93
40.0000	1	1.79	48	85.71
57.5000	1	1.79	49	87.50
60.0000	1	1.79	50	89.29
60.5000	1	1.79	51	91.07
61.0000	1	1.79	52	92.86
75.0000	1	1.79	53	94.64
76.0000	1	1.79	54	96.43
88.0000	1	1.79	55	98.21
97.5000	1	1.79	56	100.00

NOTES:

- (1) Unique values of holding time durations (hours)
- (2) Count of the number of occurrences of holding times of indicated duration
- (3) % of all holding times of indicated duration
- (4) Cumulative count of number of holding times of indicated duration or less
- (5) Cumulative % of all holding times of indicated duration or less

Standard Deviation - 24.5 Hours





GALLATIN (378')

CONFIDENCE LIMITS ON MAXIMUM HOLDING TIME

LOWER LIMIT? 97.5001
100 % BELOW THE LOWER LIMIT

CONF	LEVEL	LOWER	UPPER
%	50	97.60	100.00
%	75	96.40	100.00
%	90	94.80	100.00
%	95	93.70	100.00
%	99	91.00	100.00

Sample Size - 56

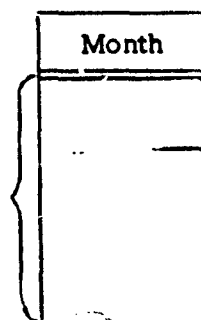
Maximum Holding Time - 97.5 Hours

TIMES BEYOND RESTRICTED WATERS

Vessel GALLATIN (378')

974						1975					
July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June
7.0	16.0	416.0	62.5	6.5	212.0	60.5	123.5	158.0		45.0	31.5
	4.0	192.5	14.0		93.0			430.0	→	94.0	11.0
	8.0								3.5	10.0	17.0
	84.0									8.0	11.0
										12.0	11.0
										35.5	47.0
										25.5	23.5
											4.0
											12.0
											13.0
											44.0
											20.0

Sortie times beyond
restricted waters



Time beyond restricted
waters continues
into next month

GALLATIN (378')

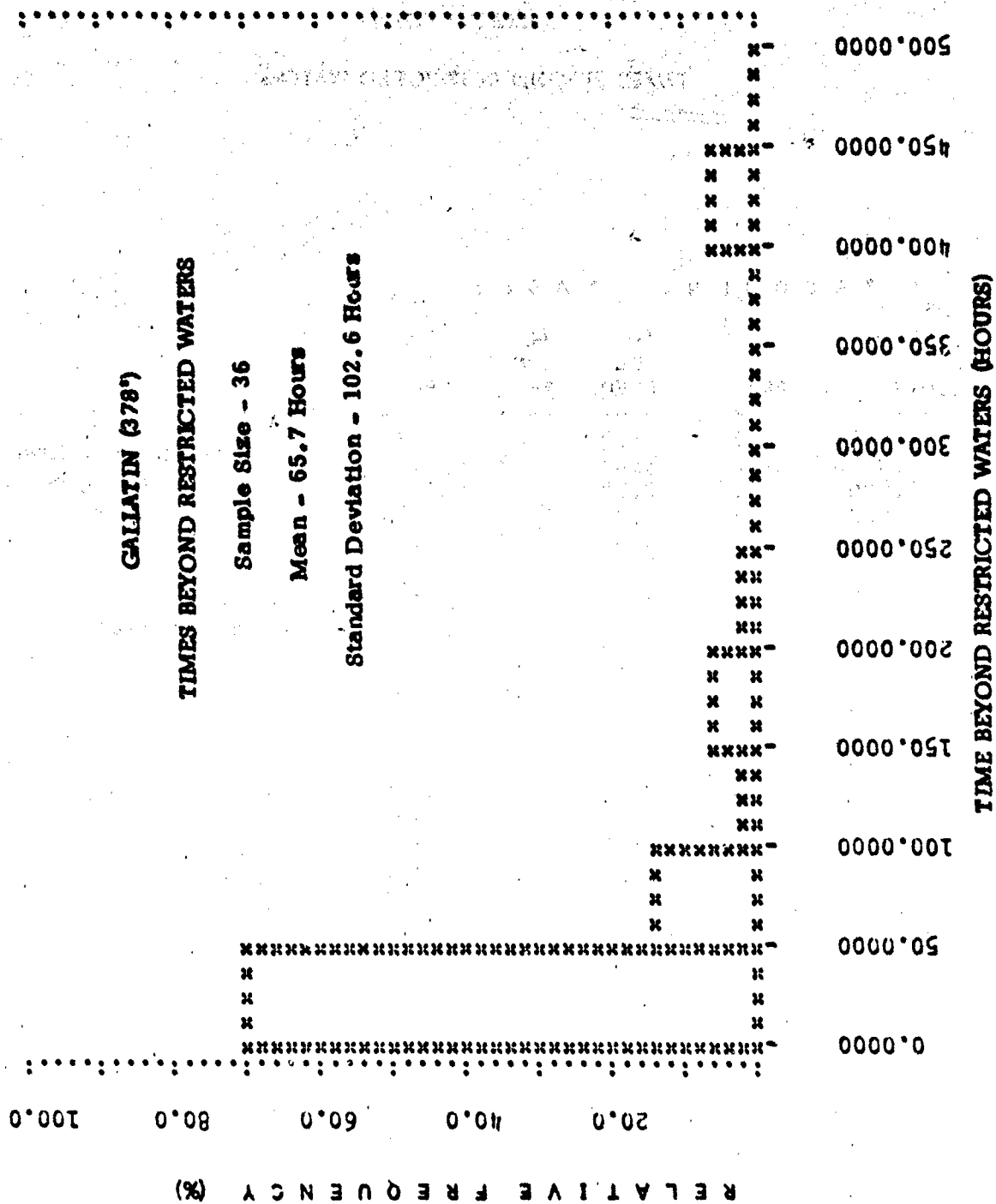
TIMES BEYOND RESTRICTED WATERS

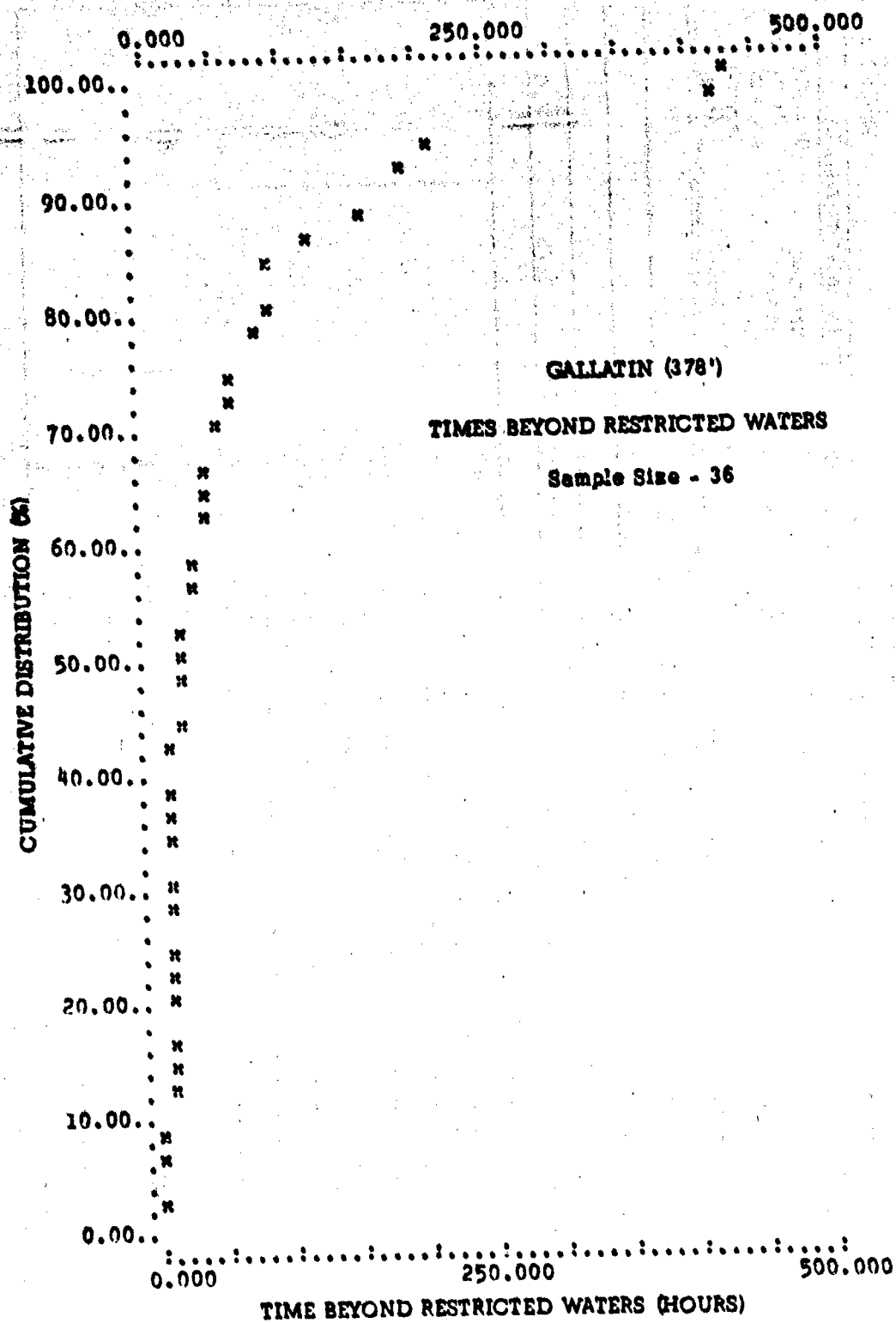
FREQUENCY TABLE

(1) CELL LOWER LIMIT -----	(2) FREQ -----	(3) REL FREQ -----	(4) CUM FREQ -----	(5) CUM REL FREQ -----
3.5000	1	2.78	1	2.78
4.0000	2	5.56	3	8.33
6.5000	1	2.78	4	11.11
7.0000	1	2.78	5	13.89
8.0000	2	5.56	7	19.44
10.0000	1	2.78	8	22.22
11.0000	3	8.33	11	30.56
12.0000	2	5.56	13	36.11
13.0000	1	2.78	14	38.89
14.0000	1	2.78	15	41.67
16.0000	1	2.78	16	44.44
17.0000	1	2.78	17	47.22
20.0000	1	2.78	18	50.00
23.5000	1	2.78	19	52.78
25.5000	1	2.78	20	55.56
31.5000	1	2.78	21	58.33
35.5000	1	2.78	22	61.11
44.0000	1	2.78	23	63.89
45.0000	1	2.78	24	66.67
47.0000	1	2.78	25	69.44
60.5000	1	2.78	26	72.22
62.5000	1	2.78	27	75.00
84.0000	1	2.78	28	77.78
93.0000	1	2.78	29	80.56
94.0000	1	2.78	30	83.33
123.5000	1	2.78	31	86.11
158.0000	1	2.78	32	88.89
192.5000	1	2.78	33	91.67
212.0000	1	2.78	34	94.44
416.0000	1	2.78	35	97.22
430.0000	1	2.78	36	100.00

NOTES:

- (1) Unique values of time durations (hours) beyond restricted waters
- (2) Count of the number of occurrences of time intervals beyond restricted waters of indicated duration
- (3) % of all time intervals beyond restricted waters of indicated duration
- (4) Cumulative count of number of time intervals beyond restricted waters of indicated duration or less
- (5) Cumulative % of time intervals beyond restricted waters of indicated duration or less





Sheet 1 of 12

Vessel GALLATIN (378')

JULY 1974

[illegible]

Charlie Status

(1) Underway time within 3-mile limit split in half.

DETAILED VESSEL MISSION PROFILE DATA

Vessel GALLATIN (3781)

AUGUST 1974

Sheet 2 of 12

DATE Month <u>8</u> Year <u>74</u>	DOCKINGS				HOURS IN HOME PORT	HOURS IN NON- HOME PORT	TOTAL HOURS UNDER- WAY	HOURS UNDER- WAY WITHIN 3-MILE LIMIT	NUMBER OF 3-MILE CROSSINGS	SORTIE CHARACTERISTICS (Estimated)			
	Home		Non-Home							TYPE	HOLDING TIME INTERVALS (Hours)		TIME INTERVALS BEYOND RESTRICTED WATERS (Hours)
	Arrival	Departure	Arrival	Departure							MAX	OTHERS	
8/1*	x	x			20.0		4.0	4.0	0	I	4.0		
8/2	x	x			4.0		20.0	4.0(1)	2	II b=1	2.0	2.0	16.0
8/3-8/6#					96.0								
8/7	x	x			20.0		4.0	4.0	0	I	4.0		
8/8	x	x			16.0		8.0	4.0(1)	2	II b=1	2.0	2.0	4.0
8/9-8/12*					96.0								
8/13	x	x			12.0		12.0	4.0(1)	2	II b=1	2.0	2.0	8.0
8/14		x					24.0	24.0	0	I	24.0		
8/15*	x				24.0								
8/16-8/26#					264.0								
8/27-8/30		x			8.0		88.0	4.0(1)	2	III a=1	76.0	40.0, 23.5	84.0, 416.0
8/31			x			24.0(2)				b=1		12.5, 2.0	192.5, 62.5
										a=3			
										a=2			
												

* Bravo Status
Charlie Status

(1) Underway time within 3-mile limit split in half.
(2) Port Everglades, Florida

Vessel GALLATIN (378)

SEPTEMBER 1974

Sheet 3 of 12

[illegible]

*** Bravo Status**

(1) Underway time within 3-mile limit split in half.

Sheet 4 of 12.

Vessel CALLIATIN (378)

OCTOBER 1974

[illegible]

(1) Underway time within 3-mile limit split in half.
(2) Curtis Bay Yard - Use Municipal Sewage System

* Bravo Status
Charlie Status

Vessel: GALLATIN (378')

NOVEMBER 1968

Sheet 5 of 12

[illegible]

Charitable Status

(1) Underway time within 3-mile limit split into 3.0 and 0.5 hrs.

(2) Curtis Bay Yard - Use Municipal Sewage System

Vessel CALLATON (3781)

Sheet 6 of 12

DECEMBER 1974

[illegible]

* Bravo Status
Charlie Status

(1) Underway time within 3-mile limit split in half.

Vessel GALLATIN (378)

JANUARY 1975

Sheet 7 of 12

[illegible]

(1) Underway time within 3-mile limit split in half,

Vessel **GALLATIN (378')**

FEBRUARY 1975

Sheet 8 of 12

[illegible]

Charlie Status

(1) Underway time within 3-mile limit split in half.

Vessel GALLATIN (378')

Vessel GALLATIN (378')

Sheet 9 of 12

[illegible]

Charlie Status

(1) Underway time within 3-mile limit split in half.
(2) Azores

Vessel
GALLATIN (3787)

APRIL 1975

Sheet 10 of 12

[illegible]

(1) Underway time within 3-mile limit split in half.
(2) Azores

Charlie Status

Vessel GALLATIN (378')

MAY 1975

Sheet 11 of 12

[illegible]

Charlie Status

(1) Underway time within 3-mile limit split in half.

(2) Charleston (3) Cuba (4) Santo Domingo

DETAILED VESSEL MISSION PROFILE DATA

Vessel GALLATIN (378)

JUNE 1975

Sheet 12 of 12

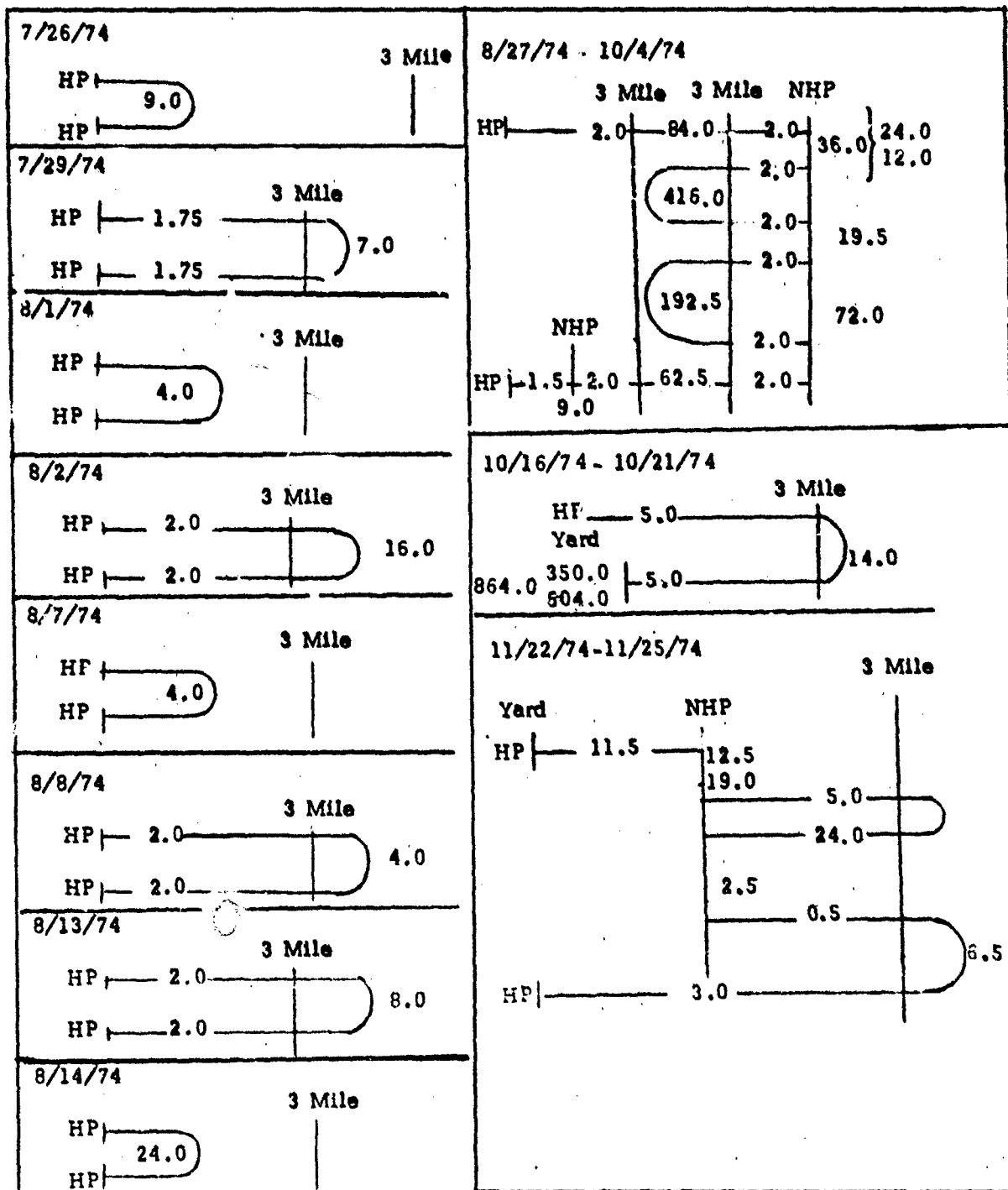
DATE Month <u>6</u> Year <u>75</u>	DOCKINGS				HOURS IN HOME PORT	HOURS IN NON- HOME PORT	TOTAL HOURS UNDER- WAY	HOURS UNDER- WAY WITHIN 3-MILE LIMIT	NUMBER OF 3-MILE CROSSINGS	SORTIE CHARACTERISTICS (Estimated)			
	Home		Non-Home							TYPE	HOLDING TIME INTERVALS (Hours)		TIME INTERVALS BEYOND RESTRICTED WATERS (Hours)
	Arrival	Departure	Arrival	Departure							MAX	OTHERS	
6/1-6/2			X	X		15.0(3)	33.0	1.5(1)	2				
6/3			X	X		12.0(2)	12.0	1.0(1)	2				
6/4			X	X		6.0(2)	18.0	1.0(1)	2				
6/5			X	X		12.0(2)	12.0	1.0(1)	2				
6/6			X	X		12.0(2)	12.0	1.0(1)	2				
6/7-6/8						48.0(2)							
6/9-6/10				X			48.0	1.0(1)	2				
6/11-6/12			X	X		23.5(2)	24.5	1.0(1)	2				
6/13			X	X		19.0(2)	5.0	1.0(1)	2				
6/14-6/16			X	X		59.0(4)	13.0	1.0(1)	2				
6/17-6/19			X	X		58.0(4)	14.0	1.0(1)	2				
6/20-6/21				X			48.0	4.0(1)	2				
6/22-6/25	X				96.0								
6/26	X	X			17.0		7.0	7.0	0	7.0	0.0		
6/27-6/28					48.0								
6/29-6/30		X	X		10.0	10.0	28.0	8.0(1)	2	14.0	4.0	20.0	

(1) Underway time within 3-mile limit split in half.
(2) Cuba (3) Santo Domingo (4) Port Everglades

DETAILED SORTIE CHARACTERISTICS (Estimated)

Vessel GAILLATIN (378')

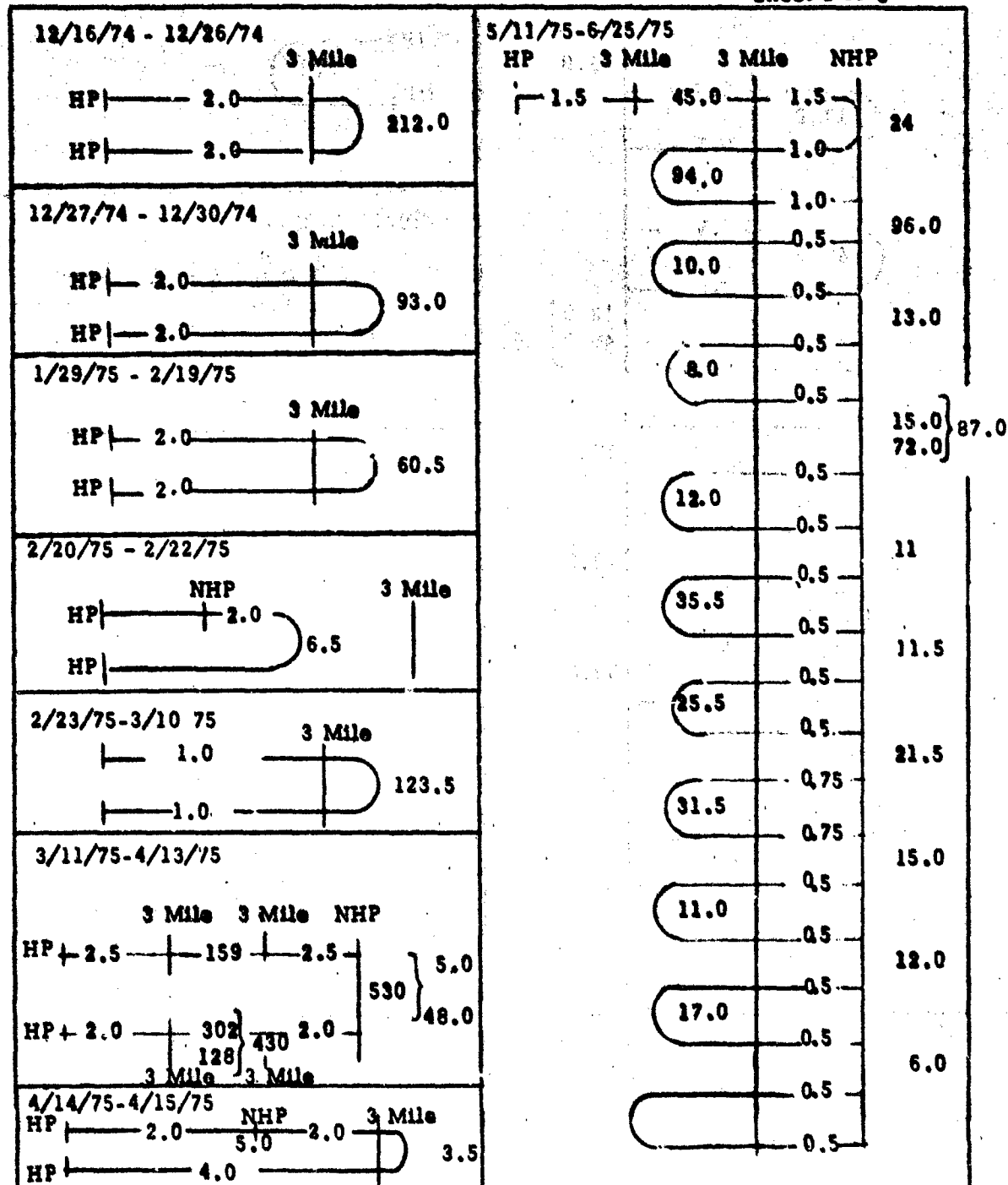
Sheet 1 of 3



DETAILED SORTIE CHARACTERISTICS (Estimated)

Vessel GALLATIN (378')

Sheet 2 of 3

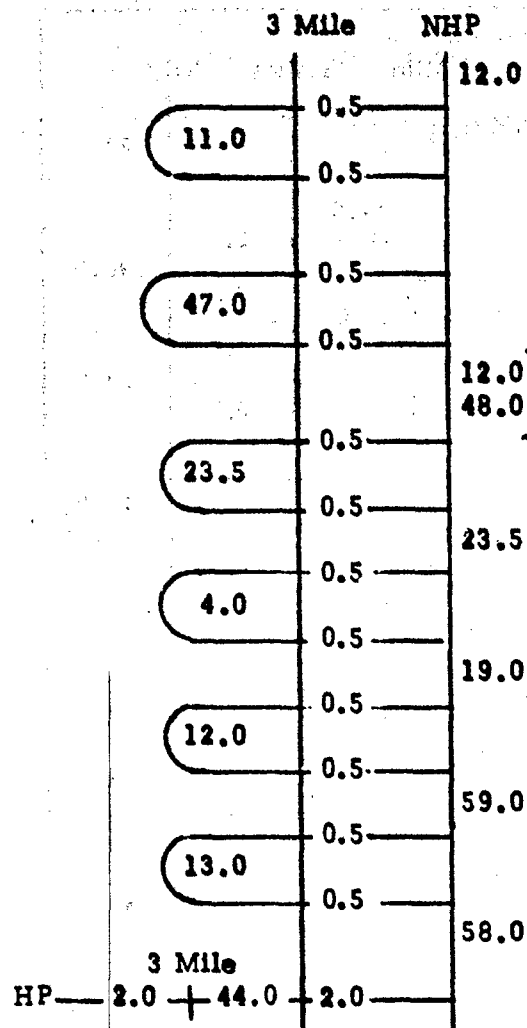


DETAILED SORTIE CHARACTERISTICS (Estimated)

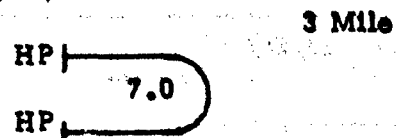
Vessel GALLATIN (378')

Sheet 3 of 3

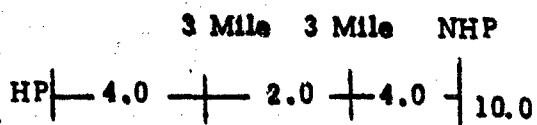
5/11/75 - 6/25/75 (Cont'd)



6/26/75



6/29/75-6/30/75



VIGOROUS (210')

Vessel Characteristic	Data
Class	WHEC - 627 Resolute (210') B Class
Type	Medium Endurance Cutter
Crew Size	60
Home Port	New London, Connecticut
Mission Profile Data Source and Time Interval	From Summary Log 12 Months 8/1/74-7/31/75

Vessel VIGCROUS (210')

(On Year Average - August 1974- July 1975)

% of time in home port (4930.0 hours) -----	56.3
% of time in non-home port (334.0 hours) -----	4.1
% of time in yard* (992.0 hours) -----	11.0
% of time underway (2504.0 hours) -----	28.6
% of time within 0-3 mile limit (152.2 hours) -----	1.7
% of time outside restricted waters (2351.8 hours) -----	26.9
% of underway time within 0-3 mile limit -----	6.0
% of underway time outside restricted waters -----	94.0
Number of 3-mile crossings -----	30
Number of home port dockings -----	32
Number of non-home port dockings -----	24
Holding time (hours), i.e., time spent within 0-3 mile limit and/or in non-home port -----	486.2
% of time spent within 0-3 mile limit and/or in non-home port -----	5.6
Maximum holding time (hours), i.e., largest time interval within 0-3 mile limit and/or in non-home port) -----	172.0
Maximum continuous number of hours outside restricted waters -----	353.0

* Scheduled Yard Availability

HOLDING TIMES

Vessel VIGOROUS (210')

1974					1975						
Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July
3.5	7.0	8.0	7.0	7.0	7.2	57.0	172.0	--	3.5	7.0	72.0
6.0		16.0	5.5	4.0	7.0	23.0	14.0		7.0	4.0	7.0
3.5		4.0	5.5		4.0		2.0		3.5		4.0
4.0					7.0				4.0		

Maximum holding
times of sorties

All other sortie
holding times

Month

VIGOROUS (210')

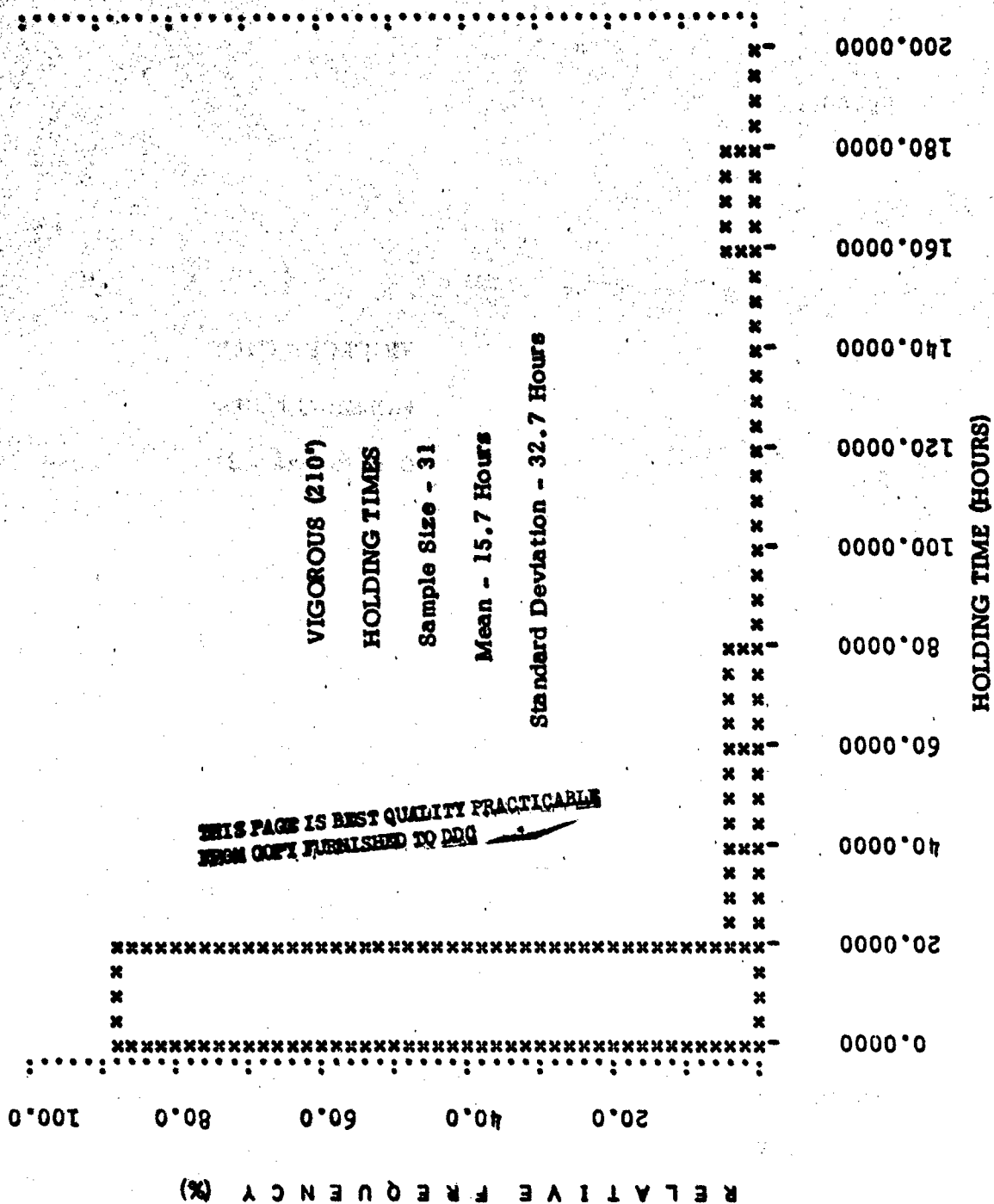
HOLDING TIMES

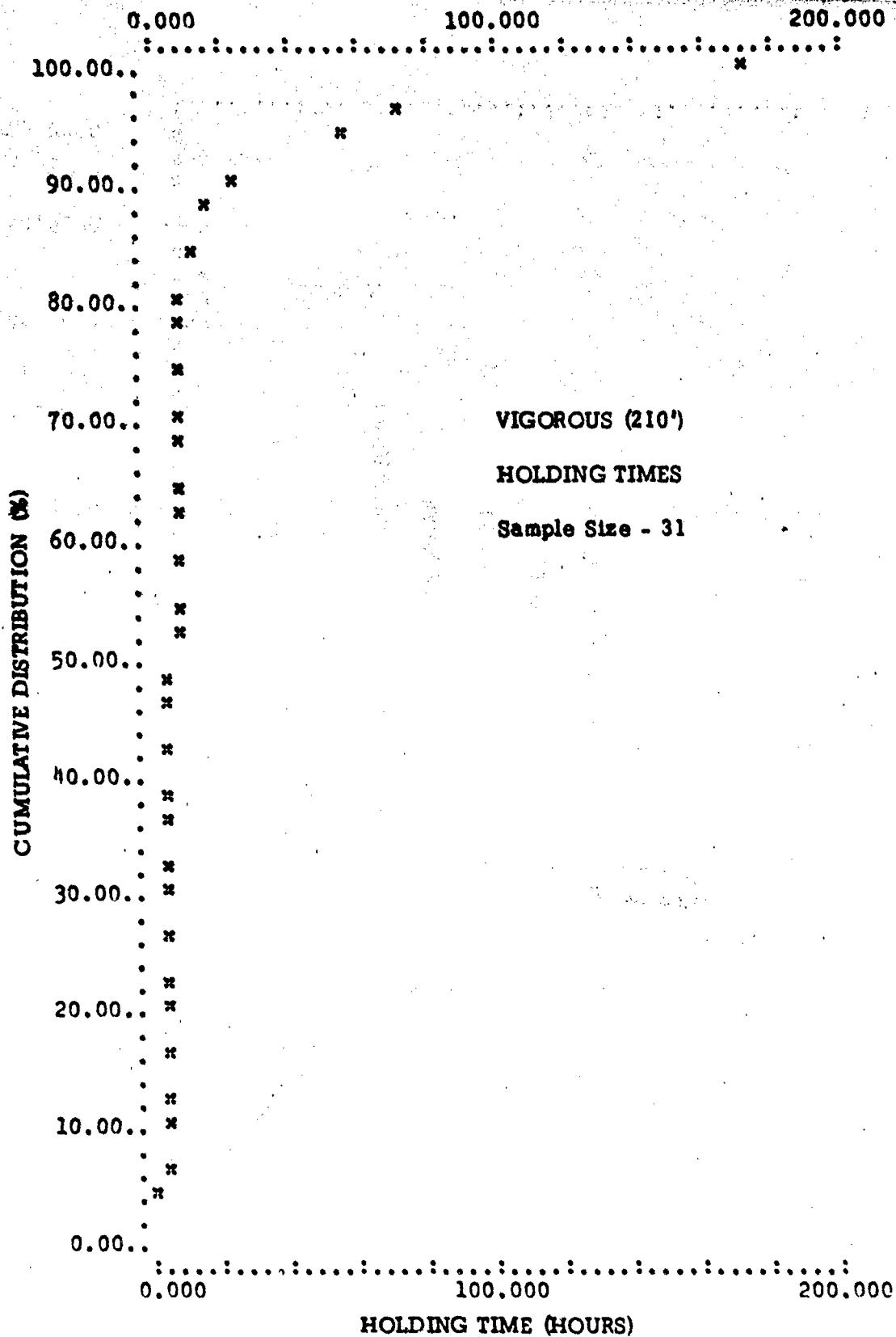
F R E Q U E N C Y T A B L E

(1) CELL LOWER LIMIT	(2) FREQ	(3) REL FREQ	(4) CUM FREQ	(5) CUM REL FREQ
-----	-----	-----	-----	-----
2.0000	1	3.23	1	3.23
3.5000	4	12.90	5	16.13
4.0000	7	22.58	12	38.71
5.5000	2	6.45	14	45.16
6.0000	1	3.23	15	48.39
7.0000	8	25.81	23	74.19
7.2000	1	3.23	24	77.42
8.0000	1	3.23	25	80.65
14.0000	1	3.23	26	83.87
16.0000	1	3.23	27	87.10
23.0000	1	3.23	28	90.32
57.0000	1	3.23	29	93.55
72.0000	1	3.23	30	96.77
172.0000	1	3.23	31	100.00

NOTES:

- (1) Unique values of holding time durations (hours)
- (2) Count of the number of occurrences of holding times of indicated duration
- (3) % of all holding times of indicated duration
- (4) Cumulative count of number of holding times of indicated duration or less
- (5) Cumulative % of all holding times of indicated duration or less





VIGOROUS (2107)

CONFIDENCE LIMITS ON MAXIMUM HOLDING TIME

LOWER LIMIT? 172.0001
100 % BELOW THE LOWER LIMIT

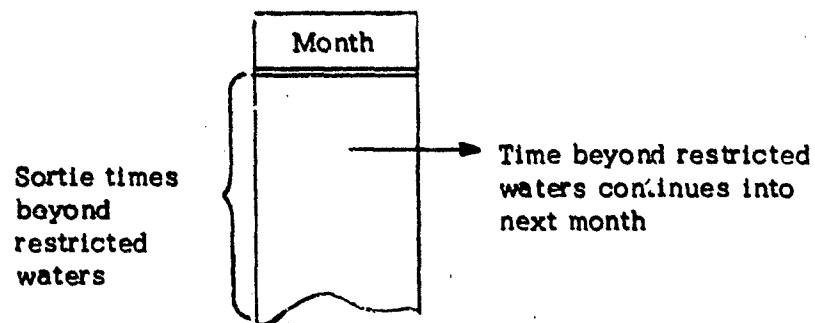
CONF	LEVEL	LOWER	UPPER
%	50	95.70	100.00
%	75	93.60	100.00
%	90	90.80	100.00
%	95	88.80	100.00
%	99	84.30	100.00

Sample Size - 31

Maximum Holding Time - 172 Hours

VESSEL VIGOROUS

1974					1975						
Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July
79.0		257.0	→	161.0	76.9		10.0	--	7.0	329.0	329.0
353.0	→		205.0		78.9		10.0		161.0		
					110.0	→					
						187.0					



VIGOROUS (210')

TIMES BEYOND RESTRICTED WATERS

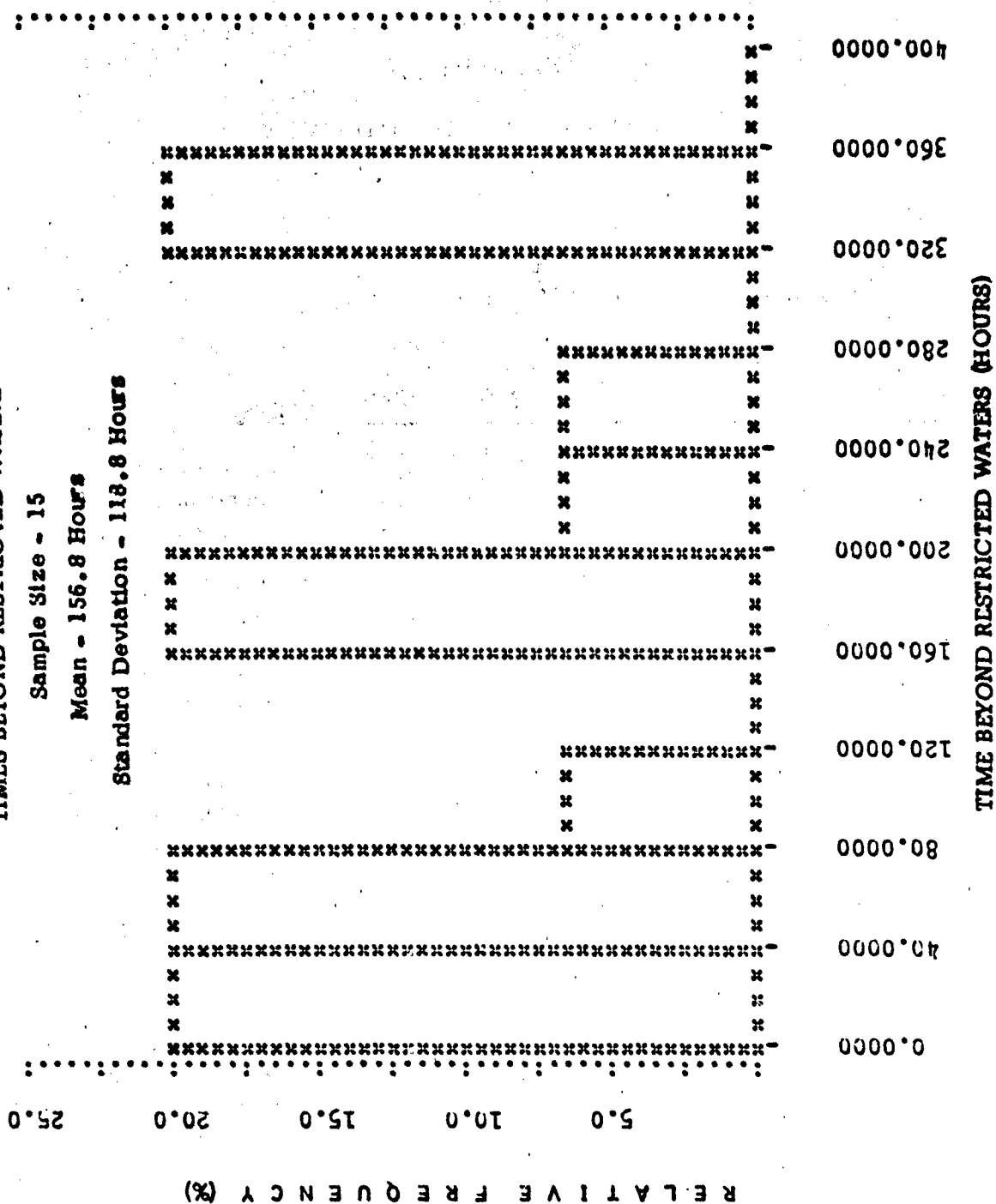
FREQUENCY TABLE

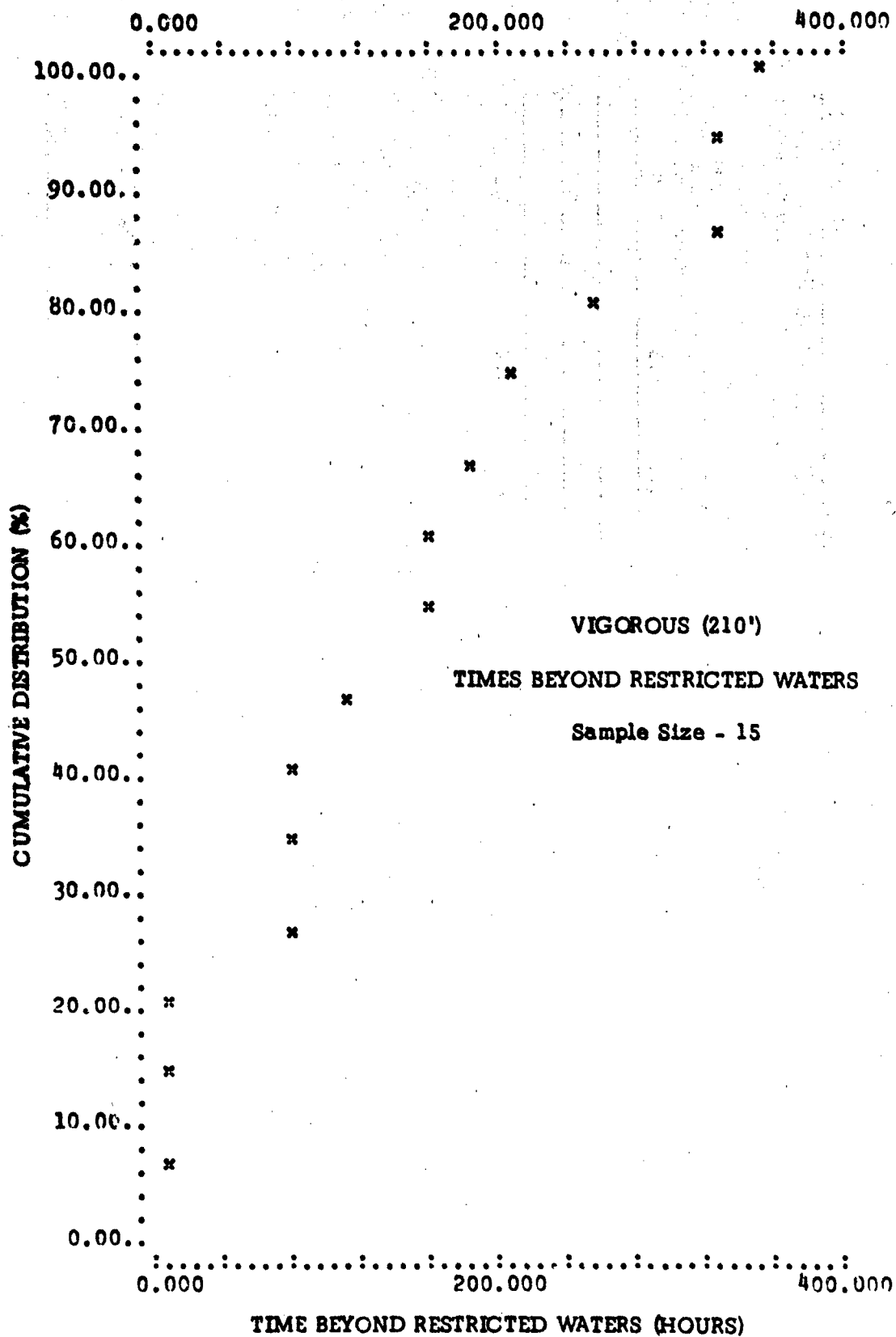
CELL LOWER LIMIT	FREQ	REL FREQ	CUM FREQ	CUM REL FREQ
7.0000	1	6.67	1	6.67
10.0000	2	13.33	3	20.00
76.9000	2	13.33	5	33.33
79.0000	1	6.67	6	40.00
110.0000	1	6.67	7	46.67
161.0000	2	13.33	9	60.00
187.0000	1	6.67	10	66.67
205.0000	1	6.67	11	73.33
257.0000	1	6.67	12	80.00
329.0000	2	13.33	14	93.33
353.0000	1	6.67	15	100.00

NOTES:

- (1) Unique values of time durations (hours) beyond restricted waters
- (2) Count of the number of occurrences of time intervals beyond restricted waters of indicated duration
- (3) % of all time intervals beyond restricted waters of indicated duration
- (4) Cumulative count of number of time intervals beyond restricted waters of indicated duration or less
- (5) Cumulative % of time intervals beyond restricted waters of indicated duration or less

VIGOROUS (210')
 TIMES BEYOND RESTRICTED WATERS
 Sample Size - 15
 Mean - 156.8 Hours
 Standard Deviation - 118.8 Hours





Vessel **VIGOROUS (2107)**

Sheet 1 of 12

AUGUST 1974

[illegible]

*** Bravo Status**

(1) Underway time with 3-mile limit split in half.

Vessel VICAROUS (2107)

SEPTEMBER 1974

Sheet 2 of 12

[illegible]

Charlie Status

(1) Underway time within 3-mile limit split in half.

Sheet 3 of 12

Vessel VIGOROUS (2107)

OCTOBER 1974

Bravo Station

Vessel VIGOROUS (210')

NOVEMBER 1974

Sheet 4 of 12

[illegible]

*** Bravo Status**

(1) Underway time within 3-mile limit split in half.

Sheet 5 of 12

Vessel VIGOROUS (210')

DECEMBER 1974

[illegible]

(1) Underway time within 3-mile limit split into 4.0; 1.5; 1.5 hrs.

* Bravo Status
Charlie Status

Vessel VIGOROUS (2107)

JANUARY 1975

Sheet 6 of 12

[illegible]

*** Bravo Status**

Vessel VIGOROUS (210')

FEBRUARY 1975

Sheet 7 of 12

[illegible]

*** Bravo Status**

Vessel VIGOROUS (2107

MARCH 1975

Sheet 8 of 12

[illegible]

Charlie Status

(1) Underway time within 3-mile limit split in half.

(12) Governor's Island (3) Scheduled Yard Availability - Staten Island Yard-
Use Municipal Sewage System

DETAILED VESSEL MISSION PROFILE DATA

Vessel ~~VIGOROUS~~ (210")

APRIL 1975

Sheet 9 of 12

[illegible][illegible]

(1) Scheduled Yard Availability (Staten Island Yard) - Use Municipal Sewage System

Vessel **VIGOROUS (210")**

MAY 1975

Sheet 10 of 12

[illegible]

*** Bravo Status**

- (1) Underway time within 3-mile limit split in half.
- (2) Underway time within 3-mile limit split into 4.0, 1.5, 1.5 hours
- (3) Staten Island Yard (OVERHAUL) - Use Municipal Sewage System

Vessel VIGOROUS (210')

JUNE 1975

Vessel VIGOROUS (210')

Sheet 11 of 12

[illegible]

*** Bravo Status**

(1) Underway time within 3-mile limit split into 4.0; 1.5; 1.5 hours.

Vessel VIGOROUS (2107)

JULY 1975

Sheet 12 of 12

[illegible]

★ Bravo Status

(1) Underway time within 3-mile limit split into 4.0; 1.5; 1.5 hours.

SORTIE CHARACTERISTICS (Estimated)			
TYPE	HOLDING TIME INTERVALS (Hours)		TIME INTERVALS BEYOND RESTRICTED WATERS (Hours)
	MAX	OTHERS	
I a=1	72.0		
II a=1 b=1	7.0	4.0	329.0

DETAILED SORTIE CHARACTERISTICS (Estimated)

Vessel VIGOROUS (210')

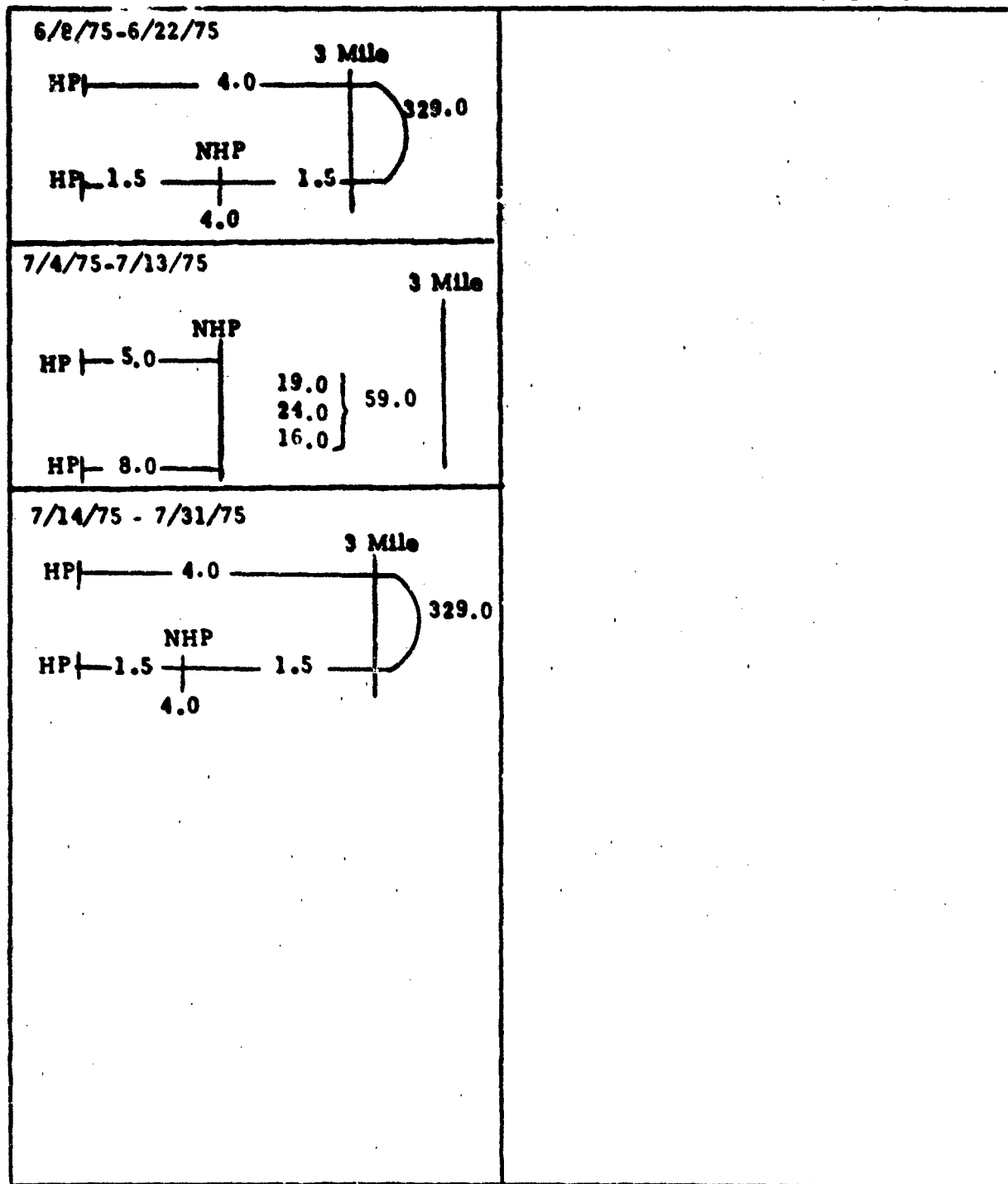
Sheet 1 of 2

<p>8/1/74 - 8/4/74</p>	<p>1/6/75-1/13/75</p>
<p>8/8/74</p>	<p>1/29/75-2/13/75</p>
<p>8/25/74-9/9/74</p>	<p>3/22/75-3/31/75</p>
<p>10/1/74</p>	<p>5/11/75-5/13/75</p>
<p>10/2/74</p>	<p>5/14/75-5/21/75</p>
<p>10/24/74-11/4/74</p>	
<p>11/17/74-11/26/74</p>	
<p>12/11/74-12/18/74</p>	

DETAILED SORTIE CHARACTERISTICS (Estimated)

Vessel VIGOROUS (210')

Sheet 2 of 2



FIREBUSH (180')

Vessel Characteristic	Data
Class	WLB - 393 Basswood (180') C Class
Type	Buoy Tender (Seagoing)
Crew Size	50
Home Port	Governor's Island, New York
Mission Profile Data Source and Time Interval	From Summary Log 12 Months 8/1/74-7/31/75

SUMMARY OF MISSION PROFILE CHARACTERISTICS

Vessel FIREBUSH (180')

(One Year Average - August 1974-July 1975)

% of time in home port (6362.0 hours) -----	72.6
% of time in non-home port (377.2 hours) -----	4.3
% of time in yard* (768.0 hours) -----	8.8
% of time underway (1252.8 hours) -----	14.3
% of time within 0-3 mile limit (860.7 hours) -----	9.8
% of time outside restricted waters (392.1 hours) -----	4.5
% of underway time within 0-3 mile limit -----	68.7
% of underway time outside restricted waters -----	31.3
Number of 3-mile crossings -----	68
Number of home port dockings -----	201
Number of non-home port dockings -----	29
Holding time (hours), i.e., time spent within 0-3 mile limit and/or in non-home port -----	1237.9
% of time spent within 0-3 mile limit and/or in non-home port -----	14.1
Maximum holding time (hours), i.e., largest time interval within 0-3 mile limit and/or in non-home port) -----	277.9
Maximum continuous number of hours outside restricted waters -----	99.3

* Scheduled Yard Availability

HOLDING TIMES

Vessel FIREBUSH (180')

1974					1975						
Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July
15.9	3.55	9.2	8.7	3.9	29.2	6.2	12.7	9.5	8.2	-	1.0
1.95	8.1	277.9	8.9	15.9	2.75	10.0	2.5	0.9	2.5		2.0
3.65	7.5	3.0	12.7	16.9	15.8	6.7	3.25	9.6	9.3		1.6
0.9	9.8	11.1	9.3	1.0	0.8		8.4	11.9	5.7		12.6
0.7	12.6	0.5	2.6	14.9	5.6		6.9	11.3	9.2		54.0
9.0	2.6	20.4	9.7	3.5	6.0		9.3	17.2	9.0		30.2
11.9	5.25	2.0	13.2	4.35	8.9		6.0	7.4	4.9		10.4
1.95	2.5	1.0	7.2	16.3	6.9		9.5	0.85	7.3		6.6
3.65	6.3			10.6	0.5		13.0	7.1	7.15		7.8
0.9	9.6			3.15	5.3		6.1	0.5	9.5		8.5
0.7	3.55			7.0	26.25		7.4	0.4	8.1		10.2
	2.6			1.0	3.55		7.8	7.5	7.15		28.15
	5.25			2.0	1.0		2.5	1.5			2.0
				5.3	2.75		3.25	0.6			1.6
				4.35	0.8			3.3			0.75
				3.15				0.85			2.0
								0.5			
								0.4			
								1.5			

Maximum holding
times of sorties

All other sorties
holding times

Month

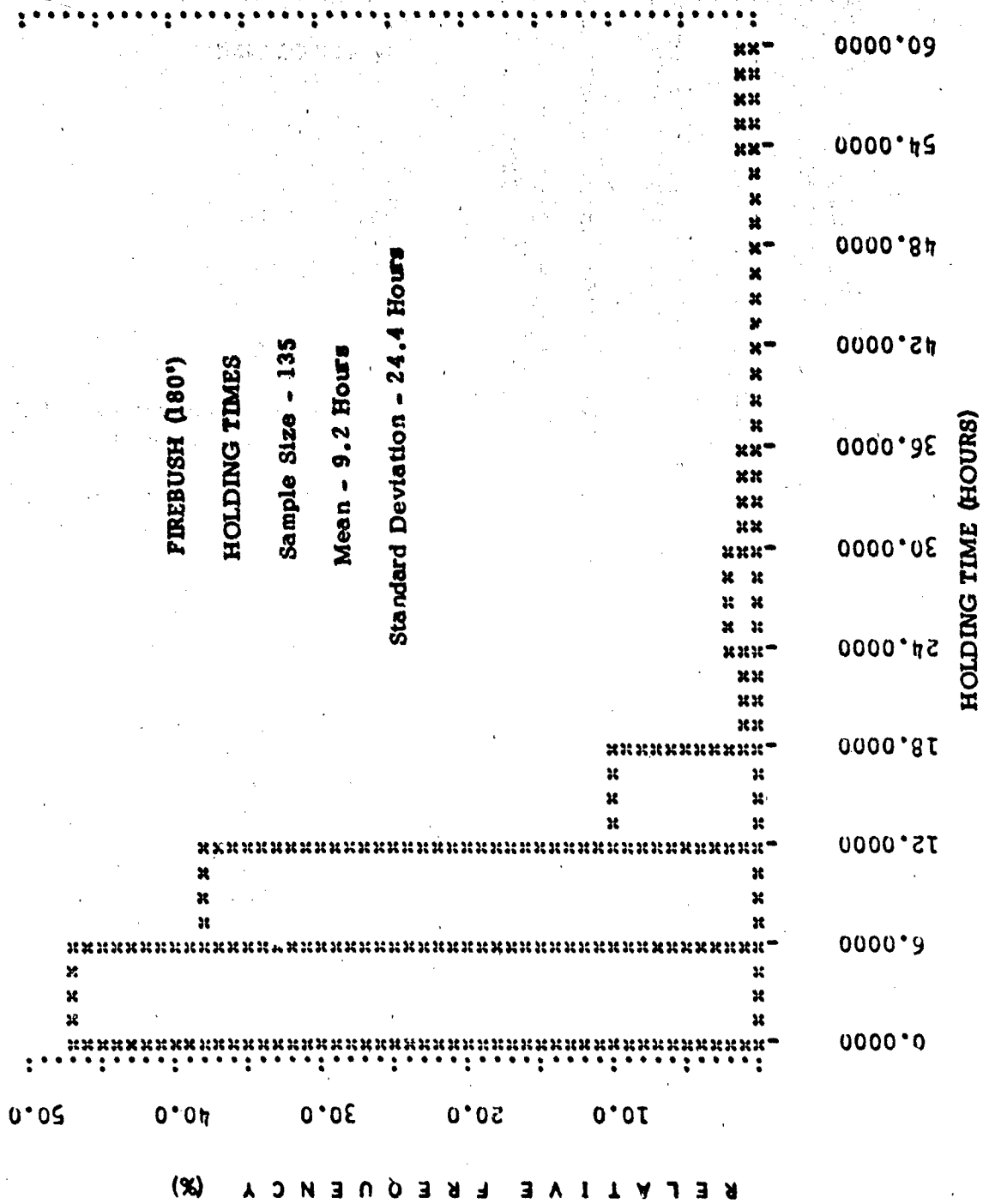
FREQUENCY TABLE				
(1) CELL LOWER LIMIT	(2) FREQ	(3) REL FREQ	(4) CUM FREQ	(5) CUM REL FREQ
0.4000	2	1.48	2	1.48
0.5000	4	2.96	6	4.44
0.6000	1	0.74	7	5.19
0.7000	2	1.48	9	6.67
0.7500	1	0.74	10	7.41
0.8000	2	1.48	12	8.89
0.8500	2	1.48	14	10.37
0.9000	3	2.22	17	12.59
1.0000	3	3.70	22	16.30
1.5000	2	1.48	24	17.78
1.6000	2	1.48	26	19.26
1.9500	2	1.48	28	20.74
2.0000	5	3.70	33	24.44
2.5000	4	2.96	37	27.41
2.6000	3	2.22	40	29.63
2.7500	3	1.48	42	31.11
3.0000	1	0.74	43	31.85
3.1500	2	1.48	45	33.33
3.2500	2	1.48	47	34.81
3.3000	1	0.74	48	35.56
3.5000	1	0.74	49	36.30
3.5500	3	2.22	52	38.52
3.6500	2	1.48	54	40.00
3.9000	1	0.74	55	40.74
4.3500	2	1.48	57	42.22
4.9000	1	0.74	58	42.96
5.2500	2	1.48	60	44.44
5.3000	2	1.48	62	45.93
5.6000	1	0.74	63	46.67
5.7000	1	0.74	64	47.41
6.0000	2	1.48	66	48.89
6.1000	1	0.74	67	49.63
6.2000	1	0.74	68	50.37
6.3700	1	0.74	69	51.11
6.6000	1	0.74	70	51.85
6.7000	1	0.74	71	52.59
6.9000	2	1.48	73	54.07
7.0500	1	0.74	74	54.81
7.1000	1	0.74	75	55.56
7.1500	2	1.48	77	57.04
7.2000	1	0.74	78	57.78
7.3000	1	0.74	79	58.52
7.4000	2	1.48	81	60.00
7.5000	2	1.48	83	61.48
7.8000	2	1.48	85	62.96
8.1000	2	1.48	87	64.44
8.2000	1	0.74	88	65.19
8.4000	1	0.74	89	65.93
8.5000	1	0.74	90	66.67
8.7000	1	0.74	91	67.41
8.9000	2	1.48	93	68.89
9.0000	2	1.48	95	70.37
9.2000	2	1.48	97	71.85
9.3000	3	2.22	100	74.07
9.5000	3	2.22	103	76.30
9.6000	2	1.48	105	77.78
9.7000	1	0.74	106	78.52
9.8000	1	0.74	107	79.26
10.0000	1	0.74	108	80.00
10.2000	1	0.74	109	80.74
10.4000	1	0.74	110	81.48
10.6000	1	0.74	111	82.22
11.1000	1	0.74	112	82.96
11.3000	1	0.74	113	83.70
11.9000	2	1.48	115	85.19
12.6000	2	1.48	117	86.67
12.7000	2	1.48	119	88.15
13.0000	1	0.74	120	88.89
13.2000	1	0.74	121	89.63
14.9000	1	0.74	122	90.37
15.8000	1	0.74	123	91.11
15.9000	2	1.48	125	92.59
16.3000	1	0.74	126	93.33
16.9000	1	0.74	127	94.07
17.7000	1	0.74	128	94.81
20.4000	1	0.74	129	95.56
26.2500	1	0.74	130	96.30
28.1500	1	0.74	131	97.04
29.2000	1	0.74	132	97.78
30.7000	1	0.74	133	98.52
54.0000	1	0.74	134	99.26
277.8999	1	0.74	135	100.00

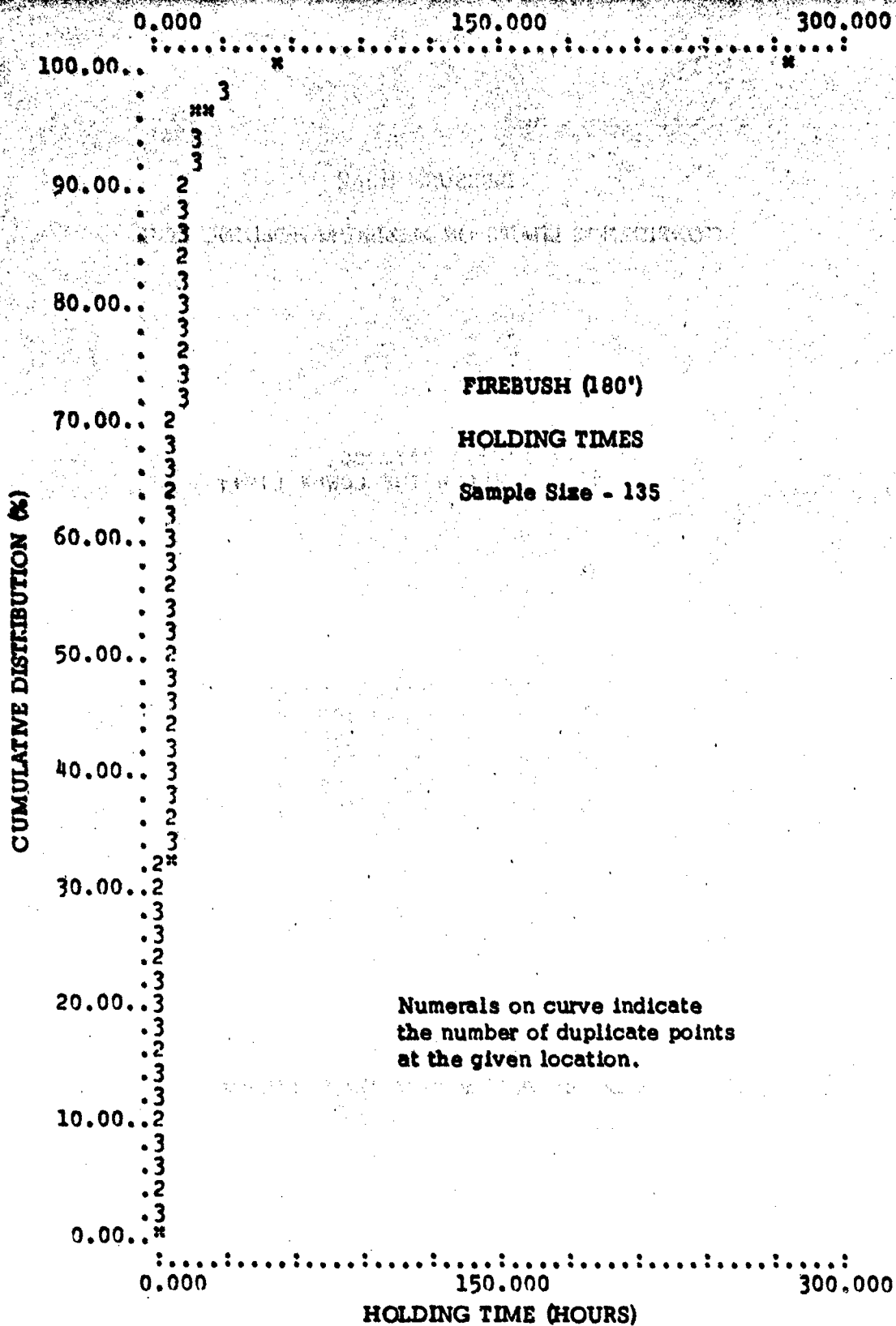
FIREBUSH (180')

HOLDING TIMES

NOTES:

- (1) Unique values of holding time durations (hours)
- (2) Count of the number of occurrences of holding times of indicated duration
- (3) % of all holding times of indicated duration
- (4) Cumulative count of number of holding times of indicated duration or less
- (5) Cumulative % of all holding times of indicated duration or less





FIREBUSH (180')

CONFIDENCE LIMITS ON MAXIMUM HOLDING TIME

LOWER LIMIT? 277.9001
100 % BELOW THE LOWER LIMIT

CONF	LEVEL	LOWER	UPPER
%	50	99.00	100.00
%	75	98.50	100.00
%	90	97.90	100.00
%	95	97.40	100.00
%	99	96.20	100.00

Sample Size - 56

Maximum Holding Time 277.899 Hours

TIMES BEYOND RESTRICTED WATERS

Vessel FIREBUSH (180')

1974					1975						
Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July
7.5	9.0	15.0	-	6.0	8.1	-	2.3	99.3	1.0	-	14.8
6.0	5.0	10.0		22.0	9.0		3.5	3.5			12.0
15.0	2.0	20.0		12.0	12.0			7.0			6.0
2.0		16.0		6.0	8.0			13.0			11.1
				2.0	18.0			2.0			
								6.0			

Month

Sortie times
beyond restricted
waters

PIREBUSH (180')

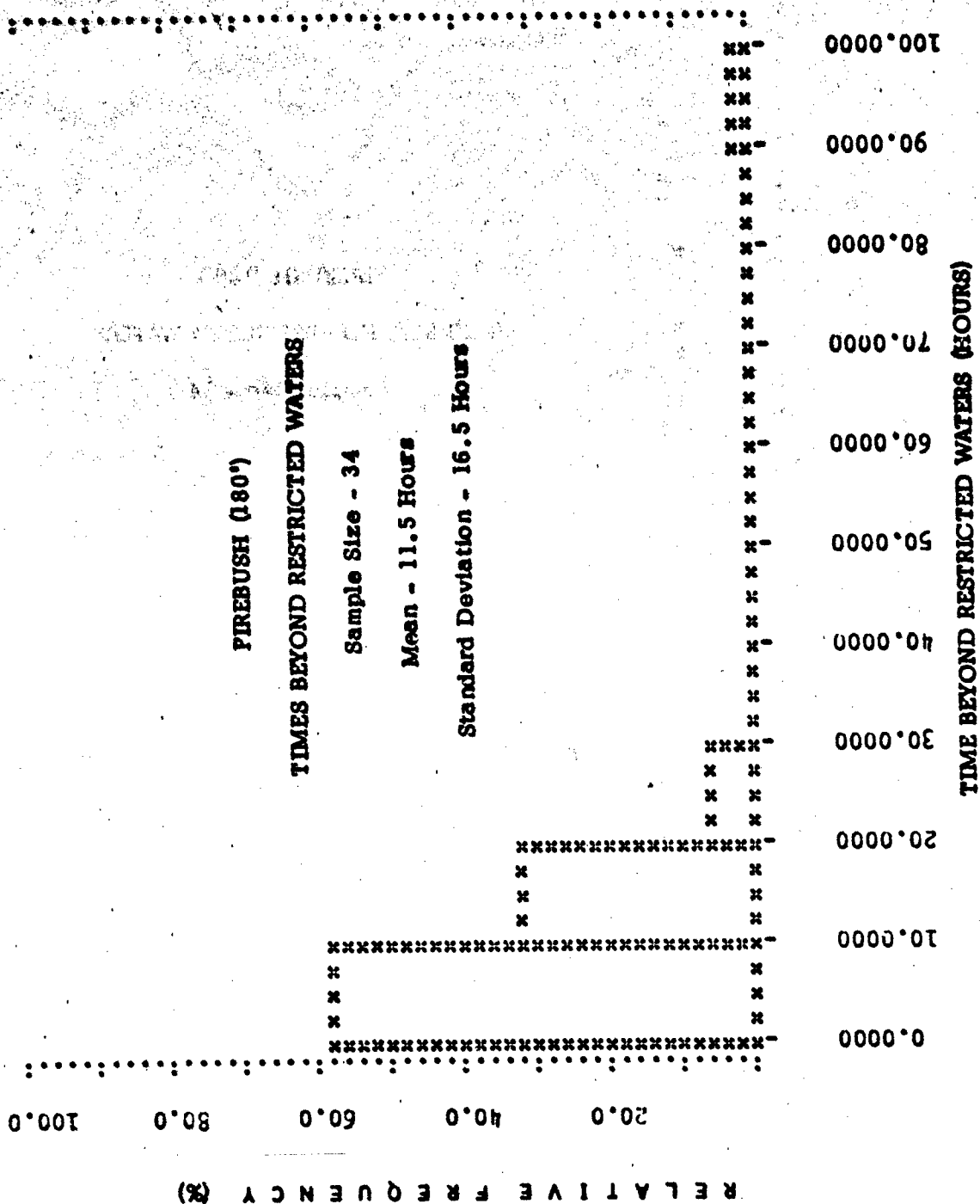
TIMES BEYOND RESTRICTED WATERS

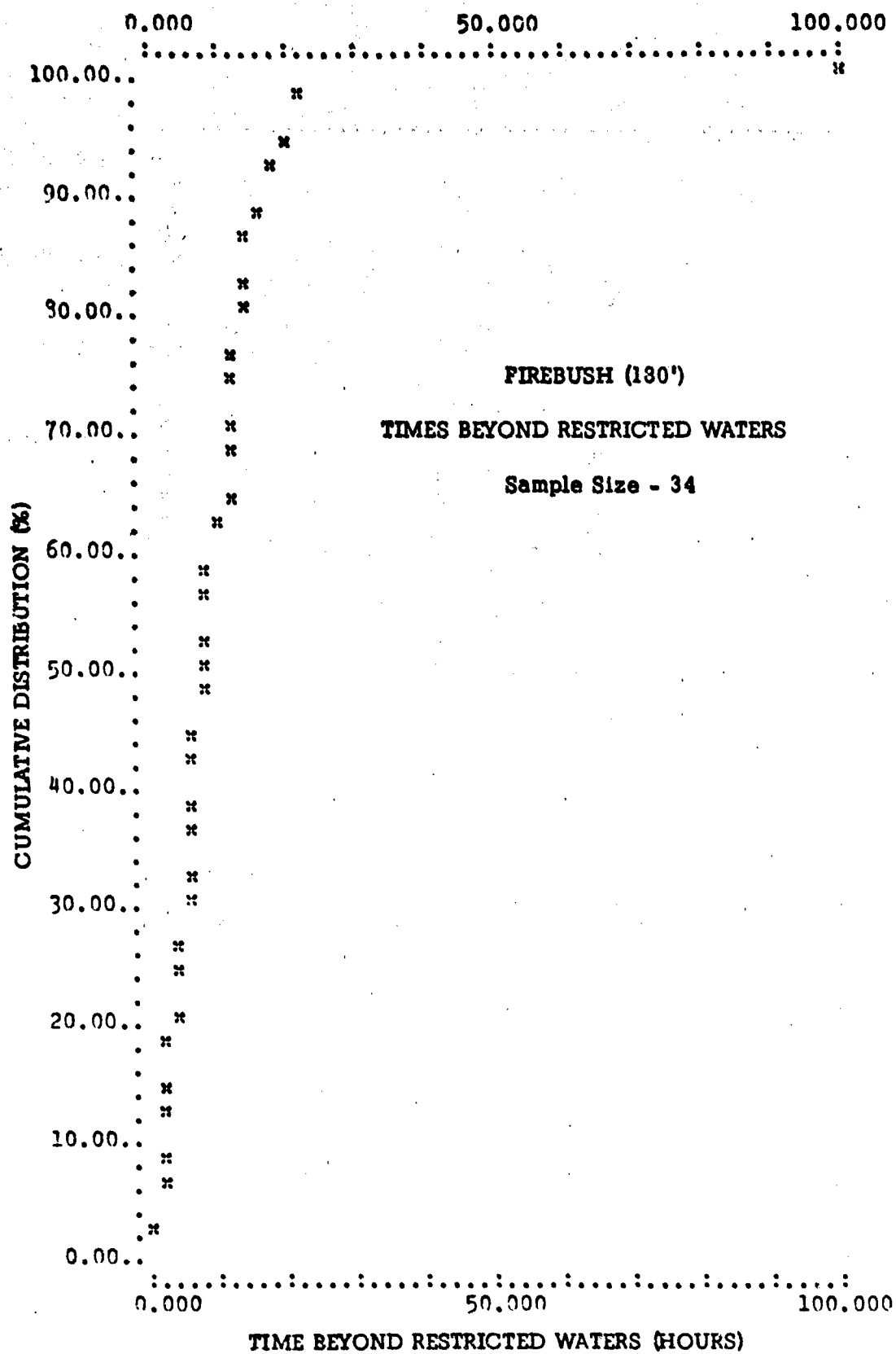
F R E Q U E N C Y T A B L E

(1) CELL LOWER LIMIT	(2) FREQ	(3) REL FREQ	(4) CUM FREQ	(5) CUM REL FREQ
1.0000	1	2.94	1	2.94
2.0000	4	11.76	5	14.71
2.3000	1	2.94	6	17.65
3.5000	2	5.88	8	23.53
5.0000	1	2.94	9	26.47
6.0000	5	14.71	14	41.18
7.0000	1	2.94	15	44.12
7.5000	1	2.94	16	47.06
8.0000	1	2.94	17	50.00
8.1000	1	2.94	18	52.94
9.0000	2	5.88	20	58.82
10.0000	1	2.94	21	61.76
11.1000	1	2.94	22	64.71
12.0000	3	8.82	25	73.53
13.0000	1	2.94	26	76.47
14.8000	1	2.94	27	79.41
15.0000	2	5.88	29	85.29
16.0000	1	2.94	30	88.24
18.0000	1	2.94	31	91.18
20.0000	1	2.94	32	94.12
22.0000	1	2.94	33	97.06
99.3000	1	2.94	34	100.00

NOTES:

- (1) Unique values of time durations (hours) beyond restricted waters
- (2) Count of the number of occurrences of time intervals beyond restricted waters of indicated duration
- (3) % of all time intervals beyond restricted waters of indicated duration
- (4) Cumulative count of number of time intervals beyond restricted waters of indicated duration or less
- (5) Cumulative % of time intervals beyond restricted waters of indicated duration or less





Vessel
FIREBUSH (180')

AUGUST 1974

Sheet 1 of 20

[illegible]

* Bravo Status
Charlie Status

(1) Underway time within 3-mile limit split in half.

DETAILED VESSEL MISSION PROFILE DATA

Vessel FIREBUSH (180')

SEPTEMBER 1974

Sheet 2 of 20

DATE Month <u>9</u> Year <u>74</u>	DOCKINGS				HOURS IN HOME PORT	HOURS IN NON- HOME PORT	TOTAL HOURS UNDER- WAY	HOURS UNDER- WAY WITHIN 3-MILE LIMIT	NUMBER OF 3-MILE CROSSINGS	SORTIE CHARACTERISTICS (Estimated)			
	Home		Non-Home							TYPE	HOLDING TIME INTERVALS (Hours)		TIDE INTERVALS BEYOND RESTRICTED WATERS (Hours)
	Arrival	Departure	Arrival	Departure							MAX	OTHERS	
9/1*					24.0								
9/2-9/3*					48.0								
9/4	x	x			7.9		16.1	7.1(1)	2	II b=1	3.55	3.55	9.0
9/5	x	x			15.9		8.1	8.1	0	I	8.1		
9/6 9/8*					72.0								
9/9	x	x			16.5		7.5	7.5	0	I	7.5		
9/10	x	x			14.2		9.8	9.8	0	I	9.8		
9/11					24.0								
9/12	x	x			11.4		12.6	12.6	0	I	12.6		
9/13-9/15*					72.0								
9/16	x	x			13.8		10.2	5.2(1)	2	II b=1	2.6	4.6	5.0
9/17*					24.0								
9/18	x	x			11.5		12.5	10.5(1)	2	II b=1	5.25	5.25	2.0
9/19	x	x			21.5		2.5	2.5	0	I	2.5		
9/20-9/22					72.0								
9/23	x	x			17.7		6.3	6.3	0	I	6.3		
9/24-9/25*					48.0								

(1) Underway time within 3-mile limit split in half.

* Bravo Status

Vessel FIREBUSH (180')

SEPTEMBER 1974

Sheet 3 of 20

[illegible]

★ **Bravo Stabis**

DETAILED VESSEL MISSION PROFILE DATA

Vessel FIREBUSH (180)

OCTOBER 1974

Sheet 4 of 20

DATE Month 10 Year 74	DOCKINGS				HOURS IN HOME PORT	HOURS IN NON- HOME PORT	TOTAL HOURS UNDER- WAY	HOURS UNDER- WAY WITHIN 3-MILE LIMIT	NUMBER OF 3-MILE CROSSINGS	SORTIE CHARACTERISTICS (Estimated)			
	Home Arrival	Home Departure	Non-Home Arrival	Non-Home Departure						TYPE	HOLDING TIME INTERVALS (Hours)		TIME INTERVALS BEYOND RESTRICTED WATERS (Hours)
											MAX	OTHERS	
10/1	x	x			14.8		9.2	9.2	0	I	9.2		
10/2-10/4					72.0								
10/5		x	x			8.0	16.0	1.0(1)	2	Π a=9 b=2	277.9	0.5, 20.4	15.0, 10.0
10/6				x		9.8	14.2	4.2(1)	2				
10/7			x			24.0							
10/8			x	x		21.4	2.6	2.6	0				
10/9			x	x		16.3	7.7	7.7	0				
10/10			x	x		16.9	7.1	7.1	0				
10/11			x	x		16.4	7.6	7.6	0				
10/12			x	x		19.9	4.1	4.1	0				
10/13						24.0							
10/14						24.0							
10/15			x	x		16.6	7.4	7.4	0				
10/16			x	x		18.4	5.6	5.6	0				
10/17				x		24.0							
10/18	x				12.2		11.8	11.8					

(1) Underway time within 3-mile limit split in half.

Vessel FIREBUSH (1807)

Sheet 5 of 20

OCTOBER 1974

[illegible]

	* Bravo Status	# Charlie Status
1. Name		
2. Position		
3. Date		
4. Time		
5. Location		
6. Remarks		

(1) Underway time within 3-mile limit split in half

DETAILED VESSEL MISSION PROFILE DATA

Sheet 6 of 20

Vessel FIREBUSH (180')

NOVEMBER 1974										DOCKINGS				HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		HOURS		H	
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* Bravo Status
Charlie Status

DETAILED VESSEL MISSION PROFILE DATA

Vessel FIREBUSH (180')

DECEMBER 1974

Sheet 7 of 20

DATE Month <u>12</u> Year <u>74</u>	DOCKINGS				HOURS IN HOME PORT	HOURS IN NON- HOME PORT	TOTAL HOURS UNDER- WAY	HOURS UNDER- WAY WITHIN 3-MILE LIMIT	NUMBER OF 3-MILE CROSSINGS	SORTIE CHARACTERISTICS (Estimated)			
	Home		Non-Home							TYPE	HOLDING TIME INTERVALS (Hours)		TIME INTERVALS BEYOND RESTRICTED WATERS (Hours)
	Arrival	Departure	Arrival	Departure							MAX	OTHERS	
12/1*					24.0								
12/2	x	x			20.1		3.9	3.9	0	I	3.9		
12/3*					24.0								
12/4	x	x			8.1		15.9	15.9	0	I	15.9		
12/5	x	x			7.1		16.9	16.9	0	I	16.9		
12/6-12/8*					72.0								
12/9	x	x			16.0		8.0	2.0(1)	2	II b=1	1.0	1.0	6.0
12/10		x			9.1		14.9	14.9	0	II b=2 C=1	14.9	2.0, 5.3	22.0, 12.0
12/11							24.0	2.0	2				
12/12	x				6.7		17.3	5.3	2				
12/13-12/15*					72.0								
12/16	x	x			20.5		3.5	3.5	0	I	3.5		
12/17	x	x			9.3		14.7	8.7(1)	2	II b=1	4.35	4.35	6.0
12/18	x	x			7.7		16.3	16.3	0	I	16.3		
12/19	x	x			13.4		10.6	10.6	0	I	10.6		
12/20	x	x			15.7		8.3	6.3(1)	2	II b=1	3.15	3.15	2.0
12/21-12/29*					216.0								

* Bravo Status

(1) Underway time within 3-mile limit split in half.

Vessel FIREBUSH (180)

Vessel FIREBUSH (1807)

DECEMBER 1974

Sheet 8 of 20

[illegible]

*** Bravo Status**

DETAILED VESSEL MISSION PROFILE DATA

Vessel FIREBUSH (1807)

JANUARY 1975

Sheet 9 of 20

DATE Month Year	DOCKINGS				HOURS IN HOME PORT	HOURS IN NON- HOME PORT	TOTAL HOURS UNDER- WAY	HOURS UNDER- WAY WITHIN 3-MILE LIMIT	NUMBER OF 2-MILE CROSSINGS	SORTIE CHARACTERISTICS (Estimated)			
	Home	Not-Home		HOLDING TIME INTERVALS (Hours)						TYPE	TIDZ INTERVALS BEYOND RESTRICTED WATERS (Hours)		
		Departure	Arrival										
												Departure	Arrival
1/1-1/6*				144.0									
1/7		x	x		13.9	10.1	2.0(1)	2		III d=2 e=1	29.2	26.25, 3.55, 1.0	8.1, 9.0, 12.0
1/8				x		9.7	14.3	2.3(1)	2				
1/9			x		24.0								
1/10	x				7.9		16.1	7.1(1)	2				
1/11	x	x			10.5		13.5	5.5(1)	2	II b=1	2.75	2.75	2.0
1/12-1/14*					72.0								
1/15	x	x			8.2		15.8	15.8	0	I	15.8		
1/16	x	x			4.4		19.6	1.6(1)	2	II b=1	0.8	0.8	18.0
1/17	x	x			18.4		5.6	5.6	0	I	5.6		
1/18-1/20*					72.0								
1/21	x	x			18.0		6.0	6.0	0	I	6.0		
1/22	x	x			15.1		8.9	8.9	0	I	8.9		
1/23*					24.0								
1/24	x	x			17.1		6.9	6.9	0	I	6.9		
1/25-1/28*					96.0								
1/29	x	x			23.5		0.5	0.5	0	I	0.5		

* Bravo Status

(1) Underway time within 3-mile limit split in half.

Vessel FIREBUSH (180)

Vessel FIREBUSH (180)

Sheet 10 of 20

[illegible]

*Bravo Status

Vessel FIREBUSH(1807)

FEBRUARY 1975

Sheet 11 of 20

[illegible]

*** Bravo Status**
Charlie Status

DETAILED VESSEL MISSION PROFILE DATA

Vessel FIREBUSH (180')

Sheet 12 of 20

MARCH 1975

DATE Month 3 Year 75	DOCKINGS				HOURS IN NON- HOME PORT	TOTAL HOURS UNDER- WAY	HOURS UNDER- WAY WITHIN 3-MILE LIMIT	NUMBER OF 3-MILE CROSSINGS	SORTIE CHARACTERISTICS (Estimated)			
	Home Arrival	Home Departure	Non-Home Arrival	Non-Home Departure					TYPE	HOLDING TIME INTERVALS (Hours)		TIME INTERVALS BEYOND RESTRICTED WATERS (Hours)
										MAX	OTHERS	
3/1-3/3*					72.0	12.7	12.7	0		12.7	I	
3/4	x	x			11.3	7.3	5.0(1)	2		2.5	II b=1	2.3
3/5	x	x			16.7	10.0	6.5(1)	2		3.25	II b=1	3.5
3/6	x	x			14.0							
3/7-3/9*					72.0	8.4	8.4	0		8.4	I	
3/10	x	x			15.6							
3/11*					24.0	6.9	6.9	0		6.9	I	
3/12	x	x			17.1							
3/13-3/16*					96.0							
3/17	x	x			14.7	9.3	9.3	0		9.3	I	
3/18	x	x			18.0	6.0	6.0	0		6.0	I	
3/19	x	x			14.5	9.5	9.5	0		9.5	I	
3/20*					24.0							
3/21	x	x			11.0	10.0	10.0	0		13.0	I a=1	
3/22-3/23*					48.0							
3/24	x	x			17.9	6.1	6.1	0		6.1	I	

(1) Underway time within 3-mile limit split in half.

*Bravo Status

Vessel PURCHASE 1807

MARCH 1975

Sheet 13 of 20

[illegible]

* **Bravo Status**

DETAILED VESSEL MISSION PROFILE DATA

Vessel FIREBUSH (180')

APRIL 1975

Sheet 14 of 20

DATE Month <u>4</u> Year <u>75</u>	DOCKINGS				HOURS IN HOME PORT	HOURS IN NON- HOME PORT	TOTAL HOURS UNDER- WAY	HOURS UNDER- WAY WITHIN 3-MILE LIMIT	NUMBER OF 3-MILE CROSSINGS	SORTIE CHARACTERISTICS (Estimated)				
	Home		Non-Home							TYPE	HOLDING TIME INTERVALS (Hours)	MAX	OTHERS	TIME INTERVALS BEYOND RESTRICTED WATERS (Hours)
	Arrival	Departure	Arrival	Departure										
4/1	x	x			14.5		9.5	9.5	0	I	9.5			
4/2-4/3*					48.0									
4/4		x			10.6		13.4	0.6	1	II b=1	0.9	0.6		
4/5							24.0	0.0	0					
4/6							24.0	0.0	0					
4/7							24.0	0.0	0					
4/8	x				8.6		15.4	0.9	1					
4/9					24.0									
4/10	x	x			14.4		9.6	9.6	0	I	9.6			
4/11-4/14*					96.0									
4/15	x	x			12.1		11.9	11.9	0	I	11.9			
4/16	x	x			12.7		11.3	11.3	0	I	11.3			
4/17		x	x	x		13.9	10.1	6.6(1)	2	II a=1 b=1	17.2	3.3		
4/18-4/20	x				72.0									
4/21	x	x			16.6		7.4	7.4	0	I	7.4			
4/22	x	x			15.3		8.7	1.7(2)	2	II b=1	0.85	0.85		
4/23	x	x			16.9		7.1	7.1	0	I	7.1			

* Bravo Status

(1) Underway time within 3-mile limit split into 3.3, 1.65, 1.65 hours.

(2) Underway time within 3-mile limit split in half.

Vessel FIREBUSH (180')

APRIL 1975

Sheet 15 of 20

[illegible]

*** Bravo Status**

(1) Underway time within 3-mile limit split in half.

DETAILED VESSEL MISSION PROFILE DATA

Vessel FIREBUSH (1807)

Sheet 16 of 20

SOLITE CHARACTERISTICS (Estimated)														
DATE Month <u>5</u> Year <u>75</u>		DOCKINGS				HOURS IN HOME PORT	HOURS IN NON- HOME PORT	TOTAL HOURS UNDER- WAY	HOURS UNDER- WAY WITHIN 3-MILE LIMIT	NUMBER OF 3-MILE CROSSINGS	TYPE	HOLDING TIME INTERVALS (Hours)		TIME INTERVALS BEYOND RESTRICTED WATERS (Hours)
		Home		Non-Home								MAX	OTHERS	
		Arrival	Departure	Arrival	Departure									
	5/1	x	x			15.8		8.2	8.2	0	I	8.2		
	5/2-5/4*					72.0								
	5/5	x	x			21.5		2.5	2.5	0	I	2.5		
	5/6	x	x			14.7		9.3	9.3	0	I	9.3		
	5/7*					24.0								
	5/8	x	x			18.3		5.7	5.7	0	I	5.7		
	5/9-5/11*					72.0								
	5/12	x	x			14.8		9.2	9.2	0	I	9.2		
	5/13*					24.0								
	5/14	x	x			15.0		9.0	9.0	0	I	9.0		
	5/15-5/18*					96.0								
	5/19	x	x			19.1		4.9	4.9	0	I	4.9		
	5/20*					24.0								
	5/21	x	x			16.7		7.3	7.3	0	I	7.3		
	5/22-5/26					120.0								
	5/27	x	x			8.7		15.3	14.3(1)	2	II b=1	7.15	1.0	
	5/28	x	x			14.5		9.5	9.5	0	I	9.5		

* Bravo Status

(1) Underway time within 3-mile limit split in half.

Vessel FIREBUSH (180')

MAY 1975

Vessel FIREBUSH (180')

Sheet 17 of 20

[illegible]

*** Bravo Status**

Vessel FIREBRUSH (1807)

JUNE 1975

Sheet 18 of 20

[illegible]

(1) Repair in Caddell Ship Yard (Use municipal sewage system)

DETAILED VESSEL MISSION PROFILE DATA

Vessel FIREFISH (1807)

JULY 1975

Sheet 19 of 20

DATE Month <u>7</u> Year <u>75</u>	DOCKINGS				HOURS IN HOME PORT	HOURS IN NON- HOME PORT	TOTAL HOURS UNDER- WAY	HOURS UNDER- WAY WITHIN 3-MILE LIMIT	NUMBER OF 3-MILE CROSSINGS	SORTIE CHARACTERISTICS (Estimated)			
	Home Arrival	Home Departure	Non-Home Arrival	Non-Home Departure						TYPE	HOLDING TIME- INTERVALS (Hours)		TIME INTERVALS BEYOND RESTRICTED WATERS (Hours)
											MAX	OTHERS	
7/1-7/2	x ⁽²⁾				48.0 ⁽²⁾								
7/3	x	x			23.0		1.0	1.0	0	1.0		I	
7/4-7/7*					96.0								
7/8	x	x			5.2		18.8	4.0 ⁽¹⁾	2	2.0	14.8	II b=1	
7/9	x	x			8.8		15.2	3.2 ⁽¹⁾	2	1.6	12.0	II b=1	
7/10	x	x			11.4		12.6	12.6	0	12.6		I	
7/11		x				12.6	11.4	11.4	0	54.0		I a=1	
7/12						24.0							
7/13	x				18.0		6.0	6.0	0				
7/14*					24.0								
7/15		x	x	x		11.0	13.0	13.0	0	30.2		I a=1	
7/16	x				17.8		6.2	6.2	0				
7/17-7/20*					96.0								
7/21	x	x			13.6		10.4	10.4	0	10.4		I	
7/22	x	x			17.4		6.6	6.6	0	6.6		I	
7/23	x	x			16.2		7.8	7.8	0	7.8		I	
7/24	x	x			15.5		8.5	8.5	0	8.5		I	

* Bravo Status

(1) Underway time within 3-limit split in half.

(2) Repair in Caddell Ship Yard (use municipal sewage system)

Sheet 20 of 20

Vessel FIREBUSH (180')

JULY 1975

[illegible]

*** Bravo Status**

DETAILED SORTIE CHARACTERISTICS (Estimated)

Vessel FIREBUSH (180')

Sheet 1 of 7

<p>8/1/74</p> <p>3 Mile</p> <p>HP 15.9</p> <p>HP </p>	<p>9/5/74</p> <p>3 Mile</p> <p>HP 8.1</p> <p>HP </p>
<p>8/3/74</p> <p>3 Mile</p> <p>HP 1.95</p> <p>HP 1.95</p> <p>7.5</p>	<p>9/9/74</p> <p>3 Mile</p> <p>HP 7.5</p> <p>HP </p>
<p>8/7/74</p> <p>3 Mile</p> <p>HP 3.65</p> <p>HP 3.65</p> <p>6.0</p>	<p>9/10/74</p> <p>3 Mile</p> <p>HP 9.8</p> <p>HP </p>
<p>8/8/74</p> <p>3 Mile</p> <p>HP 0.9</p> <p>HP 0.9</p> <p>15.0</p>	<p>9/12/74</p> <p>3 Mile</p> <p>HP 12.6</p> <p>HP </p>
<p>8/9/74</p> <p>3 Mile</p> <p>HP 0.7</p> <p>HP 0.7</p> <p>2.0</p>	<p>9/16/74</p> <p>3 Mile</p> <p>HP 2.6</p> <p>HP 2.6</p> <p>5.0</p>
<p>8/13/74</p> <p>3 Mile</p> <p>HP 9.0</p> <p>HP </p>	<p>9/18/76</p> <p>3 Mile</p> <p>HP 5.25</p> <p>HP 5.25</p> <p>2.0</p>
<p>8/14/74</p> <p>3 Mile</p> <p>HP 11.9</p> <p>HP </p>	<p>9/19/74</p> <p>3 Mile</p> <p>HP 2.5</p> <p>HP </p>
<p>9/4/74</p> <p>3 Mile</p> <p>HP 3.55</p> <p>HP 3.55</p> <p>9.0</p>	<p>9/23/74</p> <p>3 Mile</p> <p>HP 6.3</p> <p>HP </p>
	<p>9/26/74</p> <p>3 Mile</p> <p>HP 9.6</p> <p>HP </p>

DETAILED SORTIE CHARACTERISTICS (Estimated)

Vessel FIREBUSH (180')

Sheet 2 of 7

<p>10/1/74</p> <p>3 Mile</p> <p>HP 9.2</p>	<p>10/19/74-10/20/74</p> <p>3 Mile</p> <p>HP 2.0 20.0</p> <p>HP 1.0 16.0</p>
<p>10/5/74-10/18/74</p> <p>3 Mile</p> <p>HP .5 15.0</p> <p>0.5 8.0</p> <p>8.0 20.4 9.8</p> <p>9.8 2.1 10.0</p> <p>2.1 2.1</p> <p>24.0</p> <p>2.6</p> <p>21.4</p> <p>7.7</p> <p>16.3</p> <p>7.1</p> <p>16.9</p> <p>7.6</p> <p>16.4</p> <p>4.1</p> <p>19.9</p> <p>24.0</p> <p>24.0</p> <p>7.4</p> <p>16.6</p> <p>5.6</p> <p>18.4</p> <p>24.0</p> <p>11.8</p> <p>277.9</p> <p>HP 11.8</p>	<p>10/23/74</p> <p>3 Mile</p> <p>HP 11.1</p> <p>11/11/74</p> <p>3 Mile</p> <p>HP 8.7</p> <p>11/14/74</p> <p>3 Mile</p> <p>HP 8.9</p> <p>11/16/74</p> <p>3 Mile</p> <p>HP 12.7</p> <p>11/18/74</p> <p>3 Mile</p> <p>HP 9.3</p> <p>11/19/74</p> <p>3 Mile</p> <p>HP 2.6</p> <p>11/22/74</p> <p>3 Mile</p> <p>HP 9.7</p>

DETAILED SORTIE CHARACTERISTICS (Estimated)

Vessel FIREBUSH (180')

Sheet 3 of 7

<p>11/23/74</p> <p>3 Mile</p> <p>HP 13.2</p> <p>HP</p>	<p>12/17/74</p> <p>3 Mile</p> <p>HP 4.35</p> <p>HP 4.35 6.0</p>
<p>11/25/74</p> <p>3 Mile</p> <p>HP 7.2</p> <p>HP</p>	<p>12/18/74</p> <p>3 Mile</p> <p>HP 16.3</p> <p>HP</p>
<p>12/2/74</p> <p>3 Mile</p> <p>HP 3.9</p> <p>HP</p>	<p>12/19/74</p> <p>3 Mile</p> <p>HP 10.6</p> <p>HP</p>
<p>12/4/74</p> <p>3 Mile</p> <p>HP 15.9</p> <p>HP</p>	<p>12/20/74</p> <p>3 Mile</p> <p>HP 3.15</p> <p>HP 3.15 2.0</p>
<p>12/5/74</p> <p>3 Mile</p> <p>HP 16.9</p> <p>HP</p>	<p>12/30/74</p> <p>3 Mile</p> <p>HP 7.0</p> <p>HP</p>
<p>12/9/74</p> <p>3 Mile</p> <p>HP 1.0 6.0</p> <p>HP 1.0</p>	<p>1/7/75 3 Mile 3 Mile NHP</p> <p>HP 1.0 8.1 1.0 13.9</p> <p>12.0 1.65 9.7 } 23.6</p> <p>HP 3.55 9.0 3.55 24</p>
<p>12/10/74</p> <p>3 Mile</p> <p>HP 14.9 22.0</p> <p>2.0</p> <p>HP 5.3 12.0</p>	<p>1/11/75</p> <p>3 Mile</p> <p>HP 2.75 8.0</p> <p>HP 2.75</p>
<p>12/16/74</p> <p>3 Mile</p> <p>HP 3.5</p> <p>HP</p>	<p>1/15/75</p> <p>3 Mile</p> <p>HP 15.8</p> <p>HP</p>

DETAILED SORTIE CHARACTERISTICS (Estimated)

Vessel FIREBUSH (180')

Sheet 4 of 7

<p>1/16/75</p> <p>3 Mile</p> <p>HP 0.8 18.0</p> <p>HP 0.8 </p>	<p>2/27/75</p> <p>3 Mile</p> <p>HP 10.0 </p> <p>HP </p>
<p>1/17/75</p> <p>3 Mile</p> <p>HP 5.6 </p> <p>HP </p>	<p>2/28/75</p> <p>3 Mile</p> <p>HP 6.7 </p> <p>HP </p>
<p>1/21/75</p> <p>3 Mile</p> <p>HP 6.0 </p> <p>HP </p>	<p>3/4/75</p> <p>3 Mile</p> <p>HP 12.7 </p> <p>HP </p>
<p>1/22/75</p> <p>3 Mile</p> <p>HP 8.9 </p> <p>HP </p>	<p>3/5/75</p> <p>3 Mile</p> <p>HP 2.5 2.3</p> <p>HP 2.5 </p>
<p>1/24/75</p> <p>3 Mile</p> <p>HP 6.9 </p> <p>HP </p>	<p>3/6/75</p> <p>3 Mile</p> <p>HP 3.25 3.5</p> <p>HP 3.25 </p>
<p>1/29/75</p> <p>3 Mile</p> <p>HP 0.5 </p> <p>HP </p>	<p>3/10/75</p> <p>3 Mile</p> <p>HP 8.4 </p> <p>HP </p>
<p>1/30/75</p> <p>3 Mile</p> <p>HP 5.3 </p> <p>HP </p>	<p>3/12/75</p> <p>3 Mile</p> <p>HP 6.9 </p> <p>HP </p>
<p>2/18/75</p> <p>3 Mile</p> <p>HP 6.2 </p> <p>HP </p>	<p>3/17/75</p> <p>3 Mile</p> <p>HP 9.3 </p> <p>HP </p>

DETAILED SORTIE CHARACTERISTICS (Estimated)

Vessel FIREBUSH (180')

Sheet 5 of 7

<p>3/18/75</p> <p>3 Mile</p> <p>HP 6.0</p> <p>HP </p>	<p>4/10/75</p> <p>3 Mile</p> <p>HP 9.6</p> <p>HP </p>
<p>3/19/75</p> <p>3 Mile</p> <p>HP 9.5</p> <p>HP </p>	<p>4/15/75</p> <p>3 Mile</p> <p>HP 11.9</p> <p>HP </p>
<p>3/21/75</p> <p>NHP 3 Mile</p> <p>HP 5.0 3.0</p> <p>HP 5.0</p>	<p>4/16/75</p> <p>3 Mile</p> <p>HP 11.3</p> <p>HP </p>
<p>3/24/75</p> <p>3 Mile</p> <p>HP 6.1</p> <p>HP </p>	<p>4/17/75</p> <p>3 Mile</p> <p>HP 3.3</p> <p>NHP 3.5</p> <p>HP 1.65 1.65</p>
<p>3/26/75</p> <p>3 Mile</p> <p>HP 7.4</p> <p>HP </p>	<p>4/21/75</p> <p>3 Mile</p> <p>HP 7.4</p> <p>HP </p>
<p>3/28/75</p> <p>3 Mile</p> <p>HP 7.8</p> <p>HP </p>	<p>4/22/75</p> <p>3 Mile</p> <p>HP 0.85 7.0</p> <p>HP 0.85</p>
<p>4/1/75</p> <p>3 Mile</p> <p>HP 9.5</p> <p>HP </p>	<p>4/23/75</p> <p>3 Mile</p> <p>HP 7.1</p> <p>HP </p>
<p>4/4/75-4/8/75</p> <p>3 Mile</p> <p>HP 0.6 99.3</p> <p>HP 0.9</p>	<p>4/24/75</p> <p>3 Mile</p> <p>HP 0.5 19.0</p> <p>HP 0.5</p>

DETAILED SORTIE CHARACTERISTICS (Estimated)

Vessel FIREBUSH (180')

Sheet 6 of 7

<p>4/25/75</p> <p>3 Mile</p> <p>HP 0.4 D 2.0</p> <p>HP C.4 </p>	<p>5/14/75</p> <p>3 Mile</p> <p>HP 9.0 </p> <p>HP </p>
<p>4/29/75</p> <p>3 Mile</p> <p>HP 7.5 </p> <p>HP </p>	<p>5/19/75</p> <p>3 Mile</p> <p>HP 4.9 </p> <p>HP </p>
<p>4/30/75</p> <p>3 Mile</p> <p>HP 1.5 D 6.0</p> <p>HP 1.5 </p>	<p>5/21/75</p> <p>3 Mile</p> <p>HP 7.3 </p> <p>HP </p>
<p>5/1/75</p> <p>3 Mile</p> <p>HP 8.2 </p> <p>HP </p>	<p>5/27/75</p> <p>3 Mile</p> <p>HP 7.15 D 1.0</p> <p>HP 7.15 </p>
<p>5/5/75</p> <p>3 Mile</p> <p>HP 2.5 </p> <p>HP </p>	<p>5/28/75</p> <p>3 Mile</p> <p>HP 9.5 </p> <p>HP </p>
<p>5/6/75</p> <p>3 Mile</p> <p>HP 9.3 </p> <p>HP </p>	<p>5/29/75</p> <p>3 Mile</p> <p>HP 8.1 </p> <p>HP </p>
<p>5/8/75</p> <p>3 Mile</p> <p>HP 5.7 </p> <p>EP </p>	<p>7/3/75</p> <p>3 Mile</p> <p>HP 1.0 </p> <p>HP </p>
<p>5/12/75</p> <p>3 Mile</p> <p>HP 9.2 </p> <p>HP </p>	<p>7/8/75</p> <p>3 Mile</p> <p>HP 2.0 D 14.8</p> <p>HP 2.0 </p>

DETAILED SORTIE CHARACTERISTICS (Estimated)

Vessel FIREBUSH (180')

Sheet 7 of 7

<p>7/9/75</p> <p>3 Mile</p> <p>HP 1.6 12.0</p> <p>HP 1.6</p>	<p>7/29/75</p> <p>3 Mile</p> <p>HP 10.2</p> <p>HP</p>
<p>7/10/75</p> <p>3 Mile</p> <p>HP 12.6</p> <p>HP</p>	<p>7/30/75-7/31/75</p> <p>3 Mile 3 Mile NHP</p> <p>HP 0.75 11.1 0.75 14.4</p> <p>3 Mile 3 Mile 14.0 } 25.4</p> <p>HP 2.0 6.0 2.0</p>
<p>7/11/75-7/13/75</p> <p>3 Mile</p> <p>NHP</p> <p>HP 11.4 12.6 } 36.6</p> <p>HP 6.0 24.0</p>	
<p>7/15-7/16/75</p> <p>NHP 3 Mile</p> <p>HP 13.0 11.0</p> <p>HP 6.2</p>	
<p>7/21/75</p> <p>3 Mile</p> <p>HP 10.4</p> <p>HP</p>	
<p>7/22/75</p> <p>3 Mile</p> <p>HP 6.6</p> <p>HP</p>	
<p>7/23/74</p> <p>3 Mile</p> <p>HP 7.8</p> <p>HP</p>	
<p>7/24/75</p> <p>3 Mile</p> <p>HP 8.5</p> <p>HP</p>	

PAMLICO (160')
Based on Data from
SHADBUSH (74')
CLAMP (75')

Vessel Characteristic	Data for PAMLICO (160')	Data for SHADBUSH (74')	Data for CLAMP (75')
Class	WLIC - 800	WLI - 74287 Clematic (74') Class	WLIC - 75306 Clamp (75') Class
Type	Buoy Tender (Inland)	Construction Tender (Inland)	Buoy Tender (Coastal)
Crew Size	13	9	9
Home Port	New Construction (Intended for Operation in Depot Corpus, Texas)	New Orleans, La. (Transferred to Galveston, Texas)	Galveston, Texas (Transferred to New Orleans, La.)
Mission Profile Data Source and Time Interval	Represented by data from SHADBUSH and CLAMP <u>7 Months</u> 6/1/74-10/31/75	From Summary Log <u>15 Months</u> 6/1/74-8/21/75	From Summary Log <u>2 Months</u> 8/2/75-10/31/75

SUMMARY OF MISSION PROFILE CHARACTERISTICS

Vessels SHADBUSH (74') and CLAMP (75')

(One Year Average based on data from

SHADBUSH (74') - June 1974-August 1975

CLAMP (75') - August 1975-October 1975)(1)

Used as
models for
PAMLICO (160')
new construction
vessel

<u>SHADBUSH (74') & CLAMP (75')(1)</u>	<u>Estimates for PAMLICO (160')(2)</u>
% of time in home port (6273.3 hours)---71.6	(6024.7 hours)--- 68.9
% of time underway (2486.7 hours)---28.4	(2735.3 hours)--- 31.1
% of time within 0-3 mile limit (2486.7 hours)---28.4	(2735.3 hours)--- 31.1
% of underway time outside restricted waters (0 hours)--- 0.0	(0.0 hours)--- 0.0
% of underway time within 0-3 mile limit ()--- 100.0	()---100.0
Number of 3 mile crossings ----- 0	----- 0
Number of home port dockings -----64	-----64
Number of non-home port dockings ----- 0	----- 0
Holding time (hours), i.e., time spent within 0-3 mile limit and/or in non- home port-----2471.1	-----2718.1
% of time spent within 0-3 mile limit and/or in non-home port ----- 28.2	----- 31.0
Maximum holding time (hours), i.e., largest time interval within 0-3 mile limit and/or in non-home port-----456	----- 501
Maximum continuous number of hours outside restricted waters----- 0	----- 0

NOTES:

(1) Combined data from SHADBUSH and CLAMP (12-month average based on 17 months data).

(2) Estimated data for PAMLICO (10% increase in underway time).

HOLDING TIMES

Vessels SHADBUSH (74') - (June 1974-August 1975), CLAMP (75') - (August 1975-October 1975)
Used as model for PAMICO (160') new construction vessel

1974	June	July	Aug	Sept	Oct	Nov	Dec	1975	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct
	61.0	456.0	47.0	83.0	35.0	208.0	5.0		216.0	40.0	109.0		134.0	228.0	10.0	10.0		4.0
	33.0	11.0	222.0	103.0	70.0	99.0			73.0	4.0	74.0		78.0		8.0	14.0		119.0
					91.0				14.0	110.0	61.0				16.0	133.0		53.0
					82.0				22.0	8.0					15.0		202.0	
									5.0	20.0					76.0			

Maximum holding times for sorties

All other sortie holding times

Holding time continues into next month

PAMLICO (160')

HOLDING TIMES *

FREQUENCY TABLE

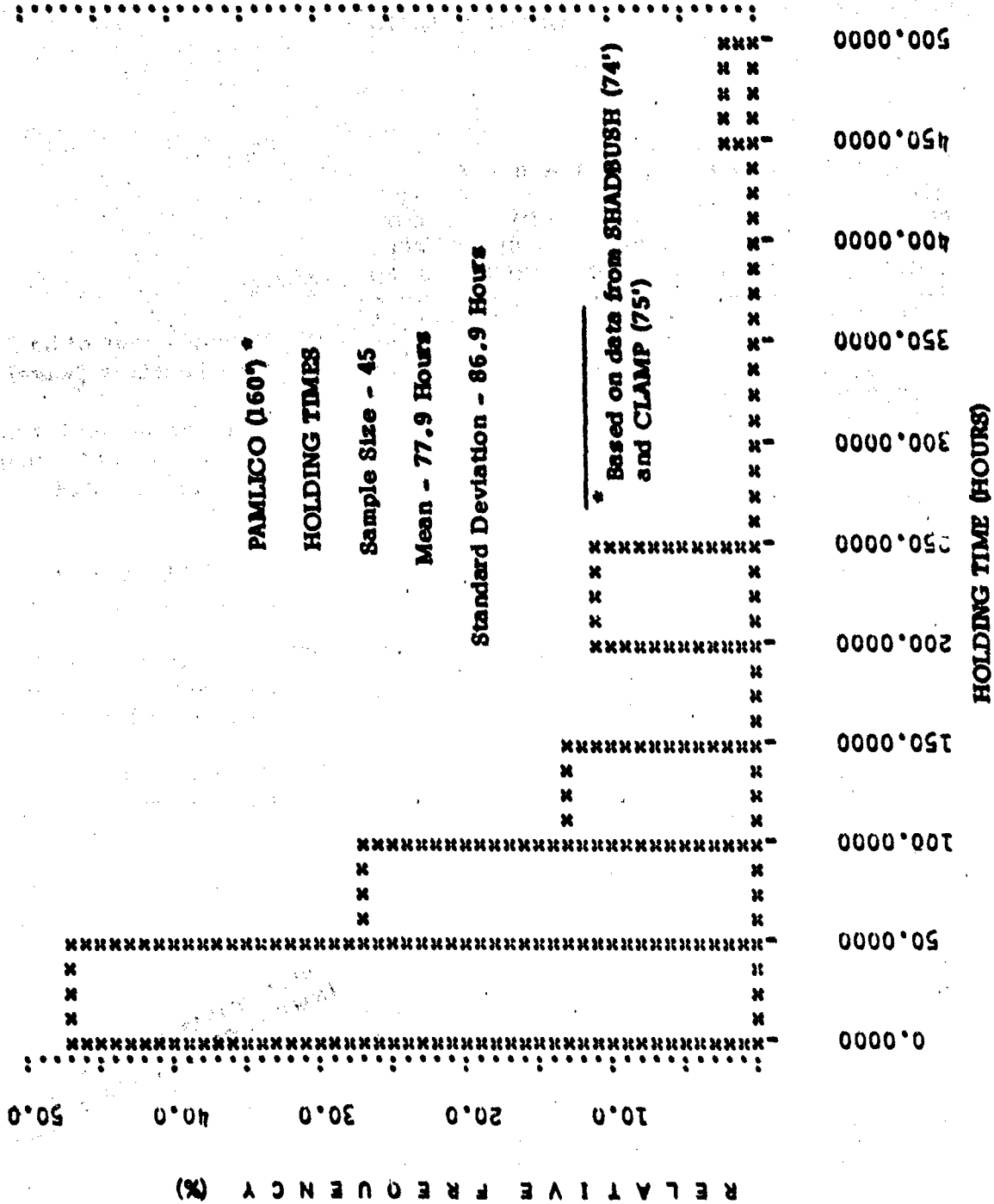
(1) CELL LOWER LIMIT	(2) FREQ	(3) REL FREQ	(4) CUM FREQ	(5) CUM REL FREQ
-----	-----	-----	-----	-----
4.0000	2	4.44	2	4.44
5.0000	2	4.44	4	8.89
8.0000	2	4.44	6	13.33
10.0000	3	6.67	9	20.00
11.0000	1	2.22	10	22.22
14.0000	2	4.44	12	26.67
15.0000	1	2.22	13	28.89
16.0000	2	4.44	15	33.33
20.0000	1	2.22	16	35.56
22.0000	1	2.22	17	37.78
33.0000	1	2.22	18	40.00
35.0000	1	2.22	19	42.22
40.0000	1	2.22	20	44.44
47.0000	1	2.22	21	46.67
53.0000	1	2.22	22	48.89
61.0000	2	4.44	24	53.33
73.0000	1	2.22	25	55.56
74.0000	1	2.22	26	57.78
76.0000	1	2.22	27	60.00
78.0000	1	2.22	28	62.22
82.0000	1	2.22	29	64.44
83.0000	1	2.22	30	66.67
89.0000	1	2.22	31	68.89
91.0000	1	2.22	32	71.11
99.0000	1	2.22	33	73.33
103.0000	1	2.22	34	75.56
109.0000	1	2.22	35	77.78
110.0000	1	2.22	36	80.00
119.0000	1	2.22	37	82.22
133.0000	1	2.22	38	84.44
134.0000	1	2.22	39	86.67
202.0000	1	2.22	40	88.89
208.0000	1	2.22	41	91.11
216.0000	1	2.22	42	93.33
222.0000	1	2.22	43	95.56
228.0000	1	2.22	44	97.78
456.0000	1	2.22	45	100.00

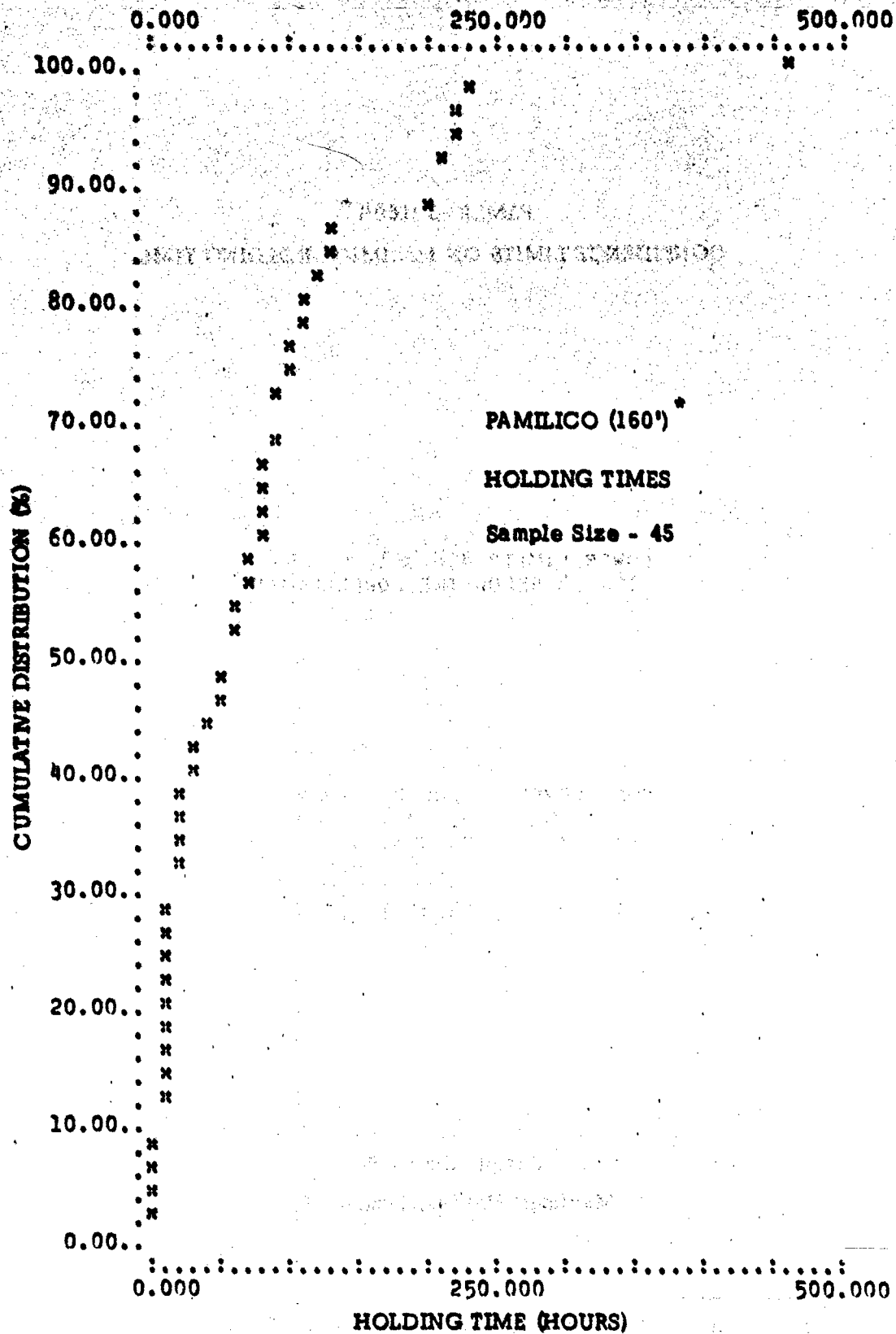
NOTES:

- (1) Unique values of holding time durations (hours)
- (2) Count of the number of occurrences of holding times of indicated duration
- (3) % of all holding times of indicated duration
- (4) Cumulative count of holding times of indicated duration or less
- (5) Cumulative % of all holding times of indicated duration or less

THIS PAGE IS BEST QUALITY PRACTICALLY
FROM GIFT FURNISHED TO DDG

* Based on data from SHADBUSH (74') and CLAMP (75')





* Based on data from SHADBUSH (74') and CLAMP (75')

PAMLICO (160') *
CONFIDENCE LIMITS ON MAXIMUM HOLDING TIME

LOWER LIMIT? 456.001
100 % BELOW THE LOWER LIMIT

CONF	LEVEL	LOWER	UPPER
%	50	97.00	100.00
%	75	95.50	100.00
%	90	93.60	100.00
%	95	92.20	100.00
%	99	88.90	100.00

Sample Size - 56
Maximum Holding Time - 456

*** Based on data for SHADBUSH (74') and CLAMP (75')**

Vessel SHADBUSH (74') **

JUNE 1974

Sheet 1 of 15

[illegible]

*** Bravo Status**

**** Used as model for PAMICO (160') new contraction vessel**

Vessel SHADBUSH (74') **

JULY 1974

Sheet 2 of 15

[illegible]

*** Bravo Status**

*** Used as model for PAMLICO (160') new construction vessel

Sheet 3 of 15

Vessel SHADBUSH (74') **

AUGUST 1974

[illegible]

*** Bravo Status**

*** Used as model for PAMLICO (160') new construction vessel

Sheet 4 of 15

Vessel SHADBUSH (74') **

SEPTEMBER 1974

[illegible]

*** Bravo Status**

* Bravo Status

** Used as model for PAMICO (160') new construction vessel

120

SORTIE CHARACTERISTICS (Estimated)			TIME INTERVALS BEYOND RESTRICTED WATERS (Hour)
TYPE	HOLDING TIME INTERVALS (Hour)		
	MAX	OTHERS	
I	83.0		
I	103.0		

DETAILED VESSEL MISSION PROFILE DATA

Vessel SHADRUSH (740)**

OCTOBER 1974

Sheet 5 of 15

DATE Month <u>10</u> Year <u>74</u>	DOCKINGS				HOURS IN HOME PORT	HOURS IN NON- HOME PORT	TOTAL HOURS UNDER- WAY	HOURS UNDER- WAY WITHIN 3-MILE LIMIT	NUMBER OF 3-MILE CROSSINGS	SORTIE CHARACTERISTICS (Estimated)			
	Home		Non-Home							TYPE	HOLDING TIME INTERVALS (Hours)		TIME INTERVALS BEYOND RESTRICTED WATERS (Hours)
	Arrival	Departure	Arrival	Departure							MAX	OTHERS	
10/1-10/6*					144.0								
10/7		x			9.0		15.0	15.0	0	I	35.0		
10/8	x				4.0		20.0	20.0	0				
10/9*					24.0								
10/10	x	x			14.0		10.0	10.0	0	I	10.0		
10/11-10/13*					72.0								
10/14		x			10.0		14.0	14.0	0	I	91.0		
10/15-10/17							72.0	72.0	0				
10/18	x				19.0		5.0	5.0	0				
10/19-10/21*					72.0								
10/22		x			11.0		13.0	13.0	0	I	82.0		
10/23-10/24							48.0	48.0	0				
10/25	x				3.0		21.0	21.0	0				
10/26-10/31*					144.0								

* Bravo Status

** Used as model for PAMICO (160') new construction vessel

Sheet 6 of 15

Vessel SHADBUSH (74') ⁴⁴

NOVEMBER 1974

[illegible]

*** Bravo Status**

* Bravo Status
** Used as a model for PAMLCO (160') new construction vessel

Vessel SHADBRUSH (741) **

Vessel SHADBRUSH (741) **

DECEMBER 1974

Sheet 7 of 15

[illegible]

*** Bravo Status**

Charlie Status

**** Used as a model for PAMICO (160') new construction vessel**

DETAILED VESSEL MISSION PROFILE DATA

Vessel SHADBUSS (74)**

Sheet 8 of 15

JANUARY 1975

DATE	DOCKINGS				HOURS IN HOME PORT	HOURS IN NON- HOME PORT	TOTAL HOURS UNDER- WAY	HOURS UNDER- WAY WITHIN 3-MILE LIMIT	NUMBER OF 3-MILE CROSSINGS	HOLDING TIME INTERVALS (Hours)			TYPE	TIME INTERVALS BEYOND RESTRICTED WATERS (Hours)	
	Home		Non-Home							MAX	OTHERS				
	Arrival	Departure	Arrival	Departure											
Month <u>1</u> Year <u>75</u>															
1/1-1/5#					120.0										
1/6#					24.0										
1/7			x		13.0		11.0	11.0	0	I	216.0				
1/8-1/15							192.0	192.0	0						
1/16		x			11.0		13.0	13.0	0						
1/17-1/21*					120.0										
1/22			x		7.0		17.0	17.0	0	I	73.0				
1/23-1/24							48.0	48.0	0						
1/25		x			16.0		8.0	8.0	0						
1/26*					24.0										
1/27		x	x		10.0		14.0	14.0	0	I	14.0				
1/28		x	x		2.0		22.0	22.0	0	I	22.0				
1/29*					24.0										
1/30		x	x		19.0		5.0	5.0	0	I	5.0				
1/31*					24.0										

* Bravo Status

** Used as model for PAMLICO (160') new construction vessel

Vessel SHADBRUSH (74') **

FEBRUARY 1975

THE UNIVERSITY OF CHICAGO

Sheet 9 of 15

[illegible]

*** Bravo Status**

**** Used as a model for PAMICO (160') new construction vessel**

Vessel SHADBRUSH (74') **

MARCH 1975

Street 10 of 15

[illegible]

*** Bravo Status**

Charlie Status

**** Used as a model for PAMICO (160') new construction vessel**

DETAILED VESSEL MISSION PROFILE DATA

Vessel SHADRUSH (74) **

APRIL 1975

Sheet 11 of 15

DATE Month <u>4</u> Year <u>75</u>	DOCKINGS				HOURS IN HOME PORT	HOURS IN HOME PORT	TOTAL HOURS UNDER- WAY	HOURS UNDER- WAY WITHIN 3-MILE LIMIT	NUMBER OF 3-MILE CROSSINGS	SORTIE CHARACTERISTICS (Estimated)			
	Home		Non-Home							TYPE	HOLDING TIME INTERVALS (Hours)		TIME INTERVALS BEYOND RESTRICTED WATERS (Hours)
	Arrival	Departure	Arrival	Departure							MAX	OTHERS	
4/1							24.0	24.0	0	.			
4/2	x			3.0			21.0	21.0	0	.			
4/3-4/7*				120.0						.			
4/8		x		8.0			16.0	16.0	0	I	89.0		
4/9-4/11							72.0	72.0	0				
4/12	x			23.0			1.0	1.0	0				
4/13-4/16*				96.0									
4/17	x	x		8.0			16.0	16.0	0	I	16.0		
4/18-4/20*				72.0									
4/21	x	x		2.0			22.0	22.0	0	I			
4/22**				24.0									
4/23-4/30#				192.0									

* Bravo Status

Charlie Status

** Used as a model for PAMICO (160') new construction vessel

Sheet 13 of 15.

*** Used as a model for PAMLICO (160') new construction vessel

Vessel SHADBUSH (74') **

Vessel SHADBUSH (74') **

JULY 1975

Sheet 14 of 15

[illegible]

*** Bravo Status**

**** Used as a model for PAMICO (160') new construction vessel**

Sheet 15 of 15

Vessel SHADBUSH (74) **

AUGUST 1975

[illegible]

*** Bravo Status**

**** Used as a model for PAMLICO (160') new construction vessel**

DETAILED SORTIE CHARACTERISTICS (Estimated)

Vessel SHADBUSH (74') *

Sheet 1 of 4

<p>6/19/74 - 6/22/74</p> <p>3 Mile</p> <p>HP 10.0</p> <p>24.0 61.0</p> <p>24.0</p> <p>HP 3.0</p>	<p>9/23/74-9/27/74</p> <p>3 Mile</p> <p>HP 14.0 14.0</p> <p>72.0 72.0</p> <p>HP 17.0 17.0</p> <p>103.0</p>
<p>6/26/74-6/30/74</p> <p>3 Mile</p> <p>HP 9.0</p> <p>33.0</p> <p>HP 24.0</p>	<p>10/7/74-10/8/74</p> <p>3 Mile</p> <p>HP 15.0 15.0</p> <p>HP 20.0 20.0</p> <p>35.0</p>
<p>7/9/74-7/30/74</p> <p>3 Mile</p> <p>HP 456.0</p> <p>HP </p>	<p>10/10/74</p> <p>3 Mile</p> <p>HP 10.0</p> <p>HP </p>
<p>7/31/74</p> <p>3 Mile</p> <p>HP 11.0</p> <p>HP </p>	<p>10/14 - 10/18/74</p> <p>3 Mile</p> <p>HP 14.0 14.0</p> <p>72.0 72.0</p> <p>HP 5.0 5.0</p> <p>91.0</p>
<p>8/6/74-8/8/74</p> <p>3 Mile</p> <p>HP 9.0</p> <p>24.0 47.0</p> <p>HP 14.0</p>	<p>10/22/- 10/25/74</p> <p>3 Mile</p> <p>HP 13.0 13.0</p> <p>48.0 48.0</p> <p>HP 21.0 21.0</p> <p>82.0</p>
<p>8/20/74-8/29/74</p> <p>3 Mile</p> <p>HP 15.0</p> <p>192.0 222.0</p> <p>HP 15.0</p>	<p>11/5/74-11/13/74</p> <p>3 Mile</p> <p>HP 13.0 17.0</p> <p>168.0 168.0</p> <p>HP 23.0 23.0</p> <p>208.0</p>
<p>9/10/74-9/13/74</p> <p>3 Mile</p> <p>HP 14.0 14.0</p> <p>48.0 48.0</p> <p>HP 21.0 21.0</p> <p>83.0</p>	

* Used as model for PAMLICO (160') new construction vessel.

DETAILED SORTIE CHARACTERISTICS (Estimated)

Vessel SHADBUSH (74')*

Sheet 2 of 4

<p>11/19/74 - 11/23/74</p> <p>3 Mile</p> <p>HP 15.0 15.0</p> <p>72.0 72.0</p> <p>HP 12.0 72.0</p> <p>99.0</p>	<p>1/30/75</p> <p>3 Mile</p> <p>HP 5.0 </p> <p>HP </p>
<p>12/4/74</p> <p>3 Mile</p> <p>HP 5.0 </p> <p>HP </p>	<p>2/3/75-2/5/75</p> <p>3 Mile</p> <p>HP 13.0 13.0</p> <p>24.0 24.0</p> <p>HP 3.0 3.0</p> <p>40.0</p>
<p>1/7/75-1/16/75</p> <p>3 Mile</p> <p>HP 11.0 11.0</p> <p>192.0 192.0</p> <p>HP 13.0 13.0</p> <p>216.0</p>	<p>2/13/75</p> <p>3 Mile</p> <p>HP 4.0 </p> <p>HP </p>
<p>1/22/75-1/25/75</p> <p>3 Mile</p> <p>HP 17.0 17.0</p> <p>48.0 48.0</p> <p>HP 8.0 8.0</p> <p>73.0</p>	<p>2/17/75 - 2/21/75</p> <p>3 Mile</p> <p>HP 15.0 15.0</p> <p>72.0 72.0</p> <p>HP 23.0 23.0</p> <p>110.0</p>
<p>1/27/75</p> <p>3 Mile</p> <p>HP 14.0 </p> <p>HP </p>	<p>2/25/75</p> <p>3 Mile</p> <p>HP 8.0 </p> <p>HP </p>
<p>1/28/75</p> <p>3 Mile</p> <p>HP 22.0 </p> <p>HP </p>	<p>2/26/75</p> <p>3 Mile</p> <p>HP 20.0 </p> <p>HP </p>

* Used as model for PAMLICC (160') new construction vessel.

DETAILED SORTIE CHARACTERISTICS (Estimated)

Vessel SHADBUSH (74)*

Sheet 3 of 4

<p>3/4/75 - 3/8/75</p> <p>3 Mile</p> <p>HP 16.0 16.0</p> <p>72.0 72.0</p> <p>HP 21.0 109.0</p> <p>21.0</p>	<p>5/6/75-5/11/75</p> <p>3 Mile</p> <p>HP 16.0 16.0</p> <p>96.0 96.0</p> <p>HP 22.0 134.0</p> <p>22.0</p>
<p>3/17/75-3/20/75</p> <p>3 Mile</p> <p>HP 17.0 17.0</p> <p>48.0 48.0</p> <p>HP 9.0 74.0</p> <p>9.0</p>	<p>5/20/75-5/23/75</p> <p>3 Mile</p> <p>HP 16.0 16.0</p> <p>48.0 18.0</p> <p>HP 14.0 78.0</p> <p>14.0</p>
<p>3/31/75-4/2/75</p> <p>3 Mile</p> <p>HP 16.0 16.0</p> <p>24.0 24.0</p> <p>HP 21.0 61.0</p> <p>21.0</p>	<p>6/16/75-6/25/75</p> <p>3 Mile</p> <p>HP 16.0 16.0</p> <p>192.0 192.0</p> <p>HP 20.0 228.0</p> <p>20.0</p>
<p>4/8/75-4/12/75</p> <p>3 Mile</p> <p>HP 16.0 16.0</p> <p>72.0 72.0</p> <p>HP 1.0 89.0</p> <p>1.0</p>	<p>7/3/75</p> <p>3 Mile</p> <p>HP 10.0</p>
<p>4/17/75</p> <p>3 Mile</p> <p>HP 16.0</p>	<p>7/9/75</p> <p>3 Mile</p> <p>HP 8.0</p>
<p>4/21/75</p> <p>3 Mile</p> <p>HP 22.0</p>	<p>7/15/75</p> <p>3 Mile</p> <p>HP 16.0</p>

* Used as model for PAMLICO (160') new construction vessel.

DETAILED SORTIE CHARACTERISTICS (Estimated)

Vessel SHADBUSH (74')*

Sheet 4 of 4

7/16/75	3 Mile	HP 15.0
7/22/75-7/25/75	3 Mile	HP 16.0 48.0 12.0 76.0
8/11/75	3 Mile	HP 10.0
8/12/75	3 Mile	HP 14.0

* Used as model for PAMLICO (160') new construction vessel.

Vessel CLAMP (75')²⁴

AUGUST 1975

Vessel CLAMP (75') **

Sheet 1 of 3

[illegible]

*** Bravo Status**

*** Used as model for PAMLICO (160') new construction vessel.

SORTIE CHARACTERISTICS (Estimated)			
TYPE	HOLDING TIME INTERVALS (Hours)		TIME INTERVALS BEYOND RESTRICTED WATERS (Hours)
	MAX	OTHERS	
I	133.0		

Vessel CLAMP (75') **

SEPTEMBER 1975

Sheet 2 of 3

[illegible]

★ Bravo Status

**** Used as a model for PAMLICO (160') new construction vessel.**

Vessel **CLAMP (75')** ******

OCTOBER 1975

Sheet 3 of 3

[illegible]

*** Bravo Status**

Charlie Status

*** Used as a model for PAMLICO (160") new construction vessel.

DETAILED SORTIE CHARACTERISTICS (Estimated)

Vessel CLAMP (75')*

Sheet 1 of 1

<p>8/27/75-9/1/75</p> <p>3 Mile</p> <p>HP 14.0</p> <p>14.0</p> <p>96.0 96.0</p> <p>23.0</p> <p>HP 23.0 133.0</p>	
<p>9/11/75-9/19/75</p> <p>3 Mile</p> <p>HP 16.0</p> <p>16.0</p> <p>168.0 168.0</p> <p>18.0</p> <p>HP 18.0 202.0</p>	
<p>10/3/75</p> <p>3 Mile</p> <p>HP 4.0</p> <p>HP </p>	
<p>10/7/75 - 10/12/75</p> <p>3 Mile</p> <p>HP 9.0</p> <p>9.0</p> <p>96.0 96.0</p> <p>14.0</p> <p>HP 14.0 119.0</p>	
<p>10/15/75-10/17/75</p> <p>3 Mile</p> <p>HP 16.0</p> <p>16.0</p> <p>24.0 24.0</p> <p>13.0</p> <p>HP 13.0 53.0</p>	

* Used as model for PAMLICO (160') new construction vessel.

WHITE SAGE (133')

Vessel Characteristics	Data
Class	WLM - 544 White Summac (133') Class
Type	Buoy Tender (Coastal)
Crew Size	21
Home Port	Woods Hole, Mass.
Mission Profile Data Source and Time Interval	From Ship's Log 8 Months <u>8/1/74-7/31/75</u>

SUMMARY OF MISSION PROFILE CHARACTERISTICS

Vessel WHITE SAGE (133')

(One Year Average - based on 8 months of
data from August 1974-July 1975)

% of time in home port (7519.4 hours) -----	85.8
% of time in non-home port (280.7 hours) -----	3.2
% of time in yard* (216.0 hours) -----	2.5
% of time underway (743.9 hours) -----	8.5
% of time within 0-3 mile limit (692.2 hours) -----	7.9
% of time outside restricted waters (51.7 hours) -----	0.6
% of underway time within 0-3 mile limit -----	93.0
% of underway time outside restricted waters -----	6.9
Number of 3-mile crossings -----	34
Number of home port dockings -----	163
Number of non-home port dockings -----	23
Holding time (hours), i.e., time spent within 0-3 mile limit and/or in non-home port -----	972.9
% of time spent within 0-3 mile limit and/or in non-home port -----	11.1
Maximum holding time (hours), i.e., largest time interval within 0-3 mile limit and/or in non-home port) -----	65.5
Maximum continuous number of hours outside restricted waters -----	5.0

* Refurbishment

HOLDING TIMES

Vessel WHITE SAGE (133')

1974			1975								
Aug	Oct	Dec	Feb	Apr	May	June	July				
6.0	2.5	2.0	65.5	8.0	1.5	9.0	47.0				
65.5	8.0	7.0	5.0	9.0	6.0	8.0	11.0				
5.0	10.0	5.5	7.0	32.0	8.0	5.0	4.0				
6.0	6.0		6.0	10.0	8.0	4.0	10.0				
5.0	2.75		30.0	6.0	4.0	7.0	8.0				
5.5	2.5		2.5		6.0	7.0	7.0				
9.0	2.75				11.0	8.0	9.0				
10.0					7.0	6.0	10.0				
4.0					6.0	4.0	4.0				
22.0						5.0	6.0				
12.5						8.0					
5.5						9.0					

Maximum holding
times for sorties

All other sortie
holding times

Month

WHITE SAGE (133')

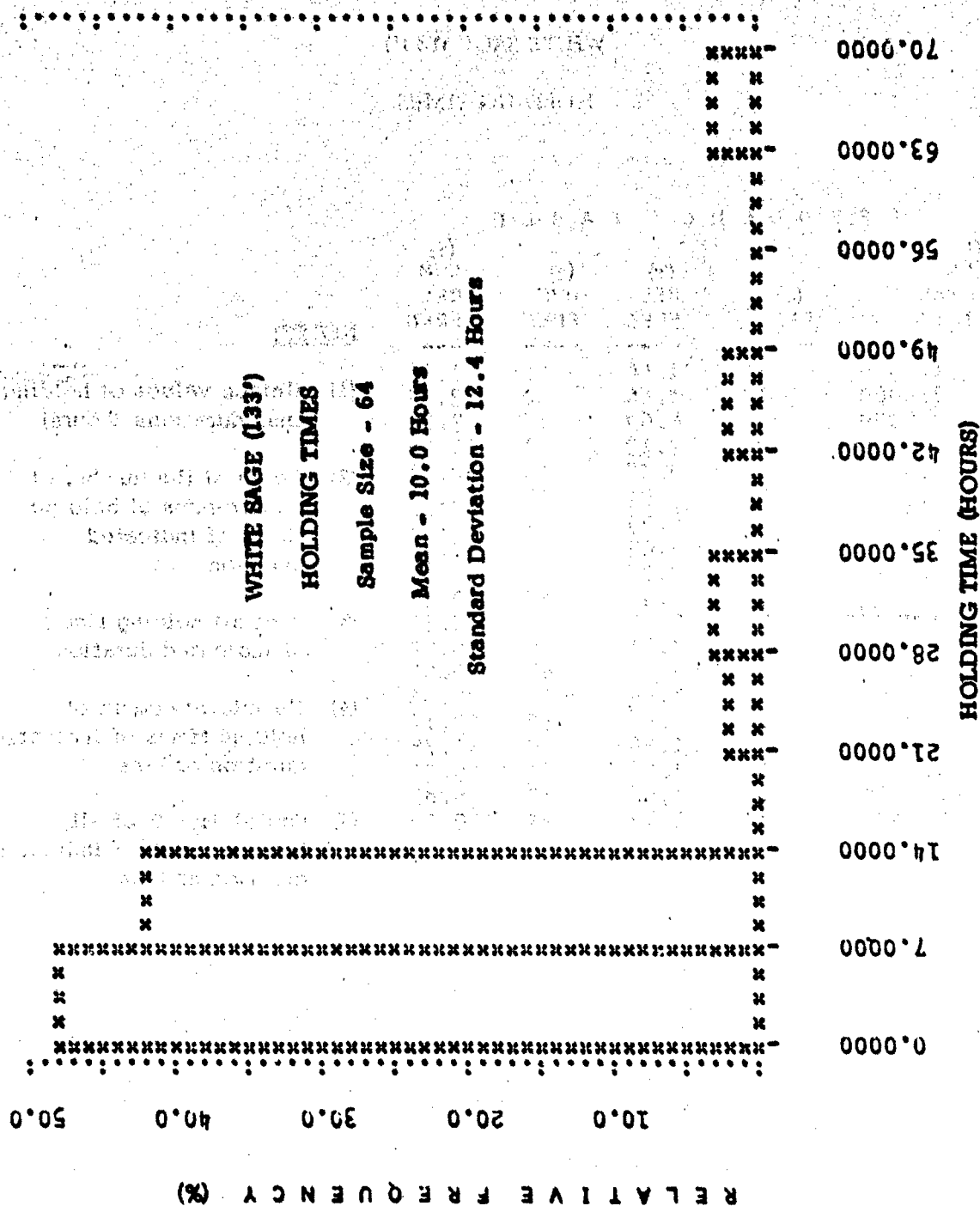
HOLDING TIMES

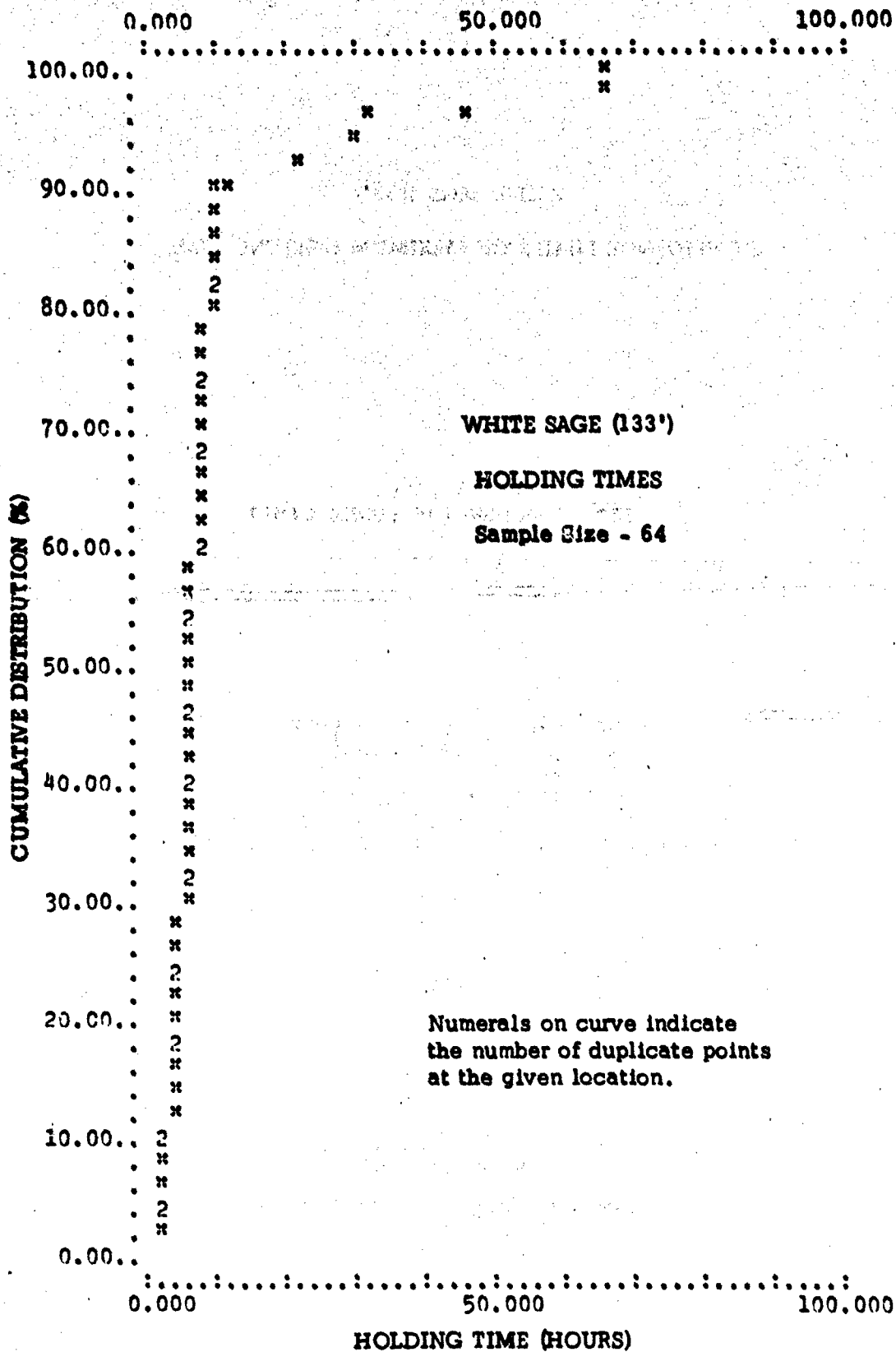
F R E Q U E N C Y T A B L E

(1) CELL LOWER LIMIT	(2) FREQ	(3) REL FREQ	(4) CUM FREQ	(5) CUM REL FREQ
-----	-----	-----	-----	-----
1.5000	1	1.56	1	1.56
2.0000	1	1.56	2	3.13
2.5000	3	4.69	5	7.81
2.7500	2	3.13	7	10.94
4.0000	6	9.38	13	20.31
5.0000	5	7.81	18	28.13
5.5000	3	4.69	21	32.81
6.0000	10	15.63	31	48.44
7.0000	6	9.38	37	57.81
8.0000	8	12.50	45	70.31
9.0000	5	7.81	50	78.13
10.0000	5	7.81	55	85.94
11.0000	2	3.13	57	89.06
12.5000	1	1.56	58	90.63
22.0000	1	1.56	59	92.19
30.0000	1	1.56	60	93.75
32.0000	1	1.56	61	95.31
47.0000	1	1.56	62	96.89
65.5000	2	3.13	64	100.00

NOTES:

- (1) Unique values of holding time durations (hours)
- (2) Count of the number of occurrences of holding times of indicated duration
- (3) % of all holding times of indicated duration
- (4) Cumulative count of holding times of indicated duration or less
- (5) Cumulative % of all holding times of indicated duration or less





WHITE SAGE (133')

CONFIDENCE LIMITS ON MAXIMUM HOLDING TIME

LOWER LIMIT? 65.5001
100 % BELOW THE LOWER LIMIT

CONF	LEVEL	LOWER	UPPER
3	50	97.90	100.00
5	75	96.90	100.00
5	90	95.50	100.00
5	95	94.50	100.00
5	99	92.10	100.00

Sample Size - 64

Maximum Holding Time - 65.5 Hours

Vessel WHITE SAGE (133')

Month

Sortie times beyond restricted waters

WHITE SAGE (1337)

TIMES BEYOND RESTRICTED WATERS

F R E Q U E N C Y T A B L E				
(1) CELL LOWER LIMIT -----	(2) FREQ -----	(3) REL FREQ -----	(4) CUM FREQ -----	(5) CUM REL FREQ -----
2.0000	1	9.09	1	9.09
3.0000	9	81.82	10	90.91
5.0000	1	9.09	11	100.00

NOTES:

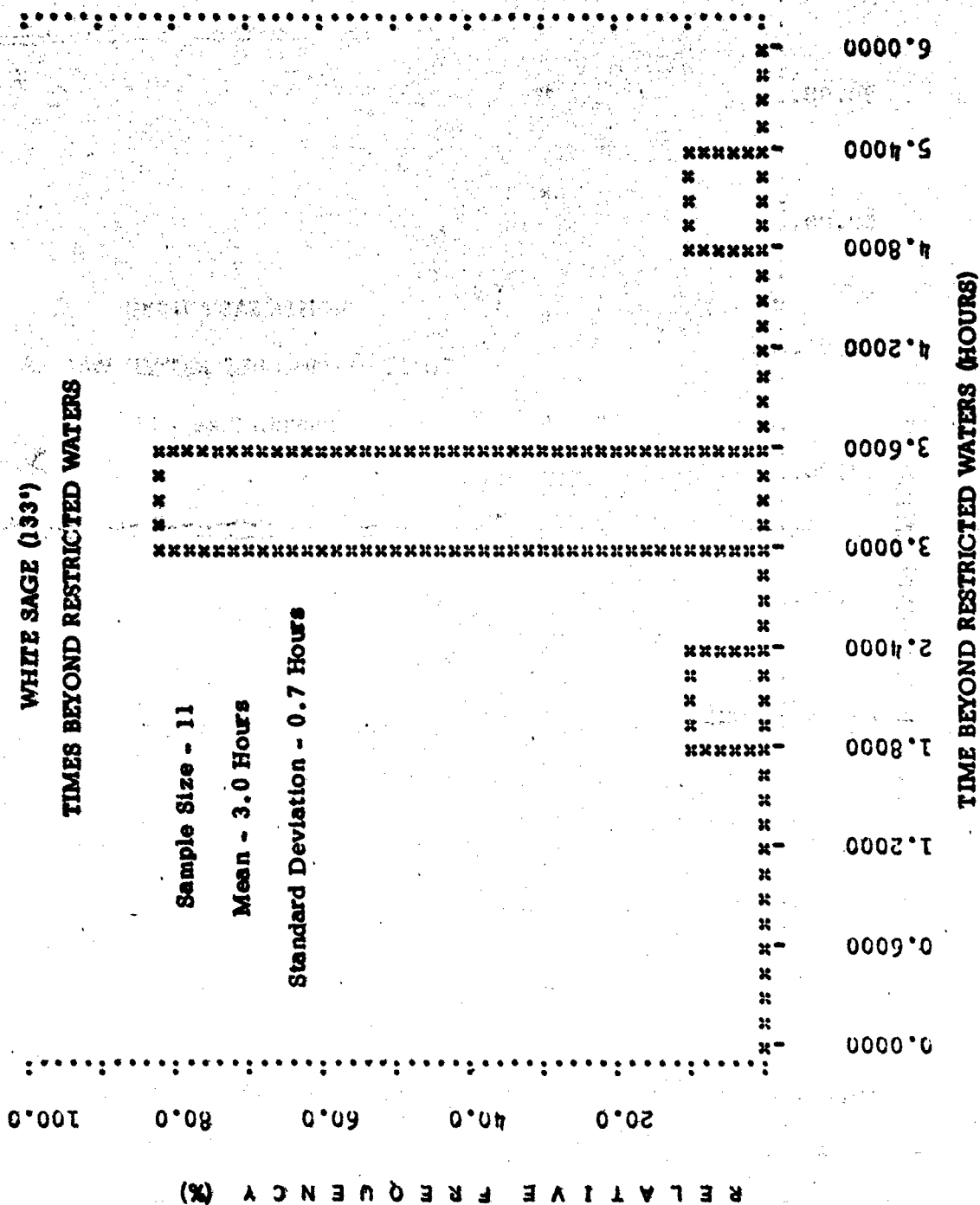
- (1) Unique values of time durations (hours) beyond restricted waters
- (2) Count of the number of occurrences of time intervals beyond restricted waters of indicated duration
- (3) % of all time intervals beyond restricted waters of indicated duration
- (4) Cumulative count of number of time intervals beyond restricted waters of indicated duration or less
- (5) Cumulative % of time intervals beyond restricted waters of indicated duration or less

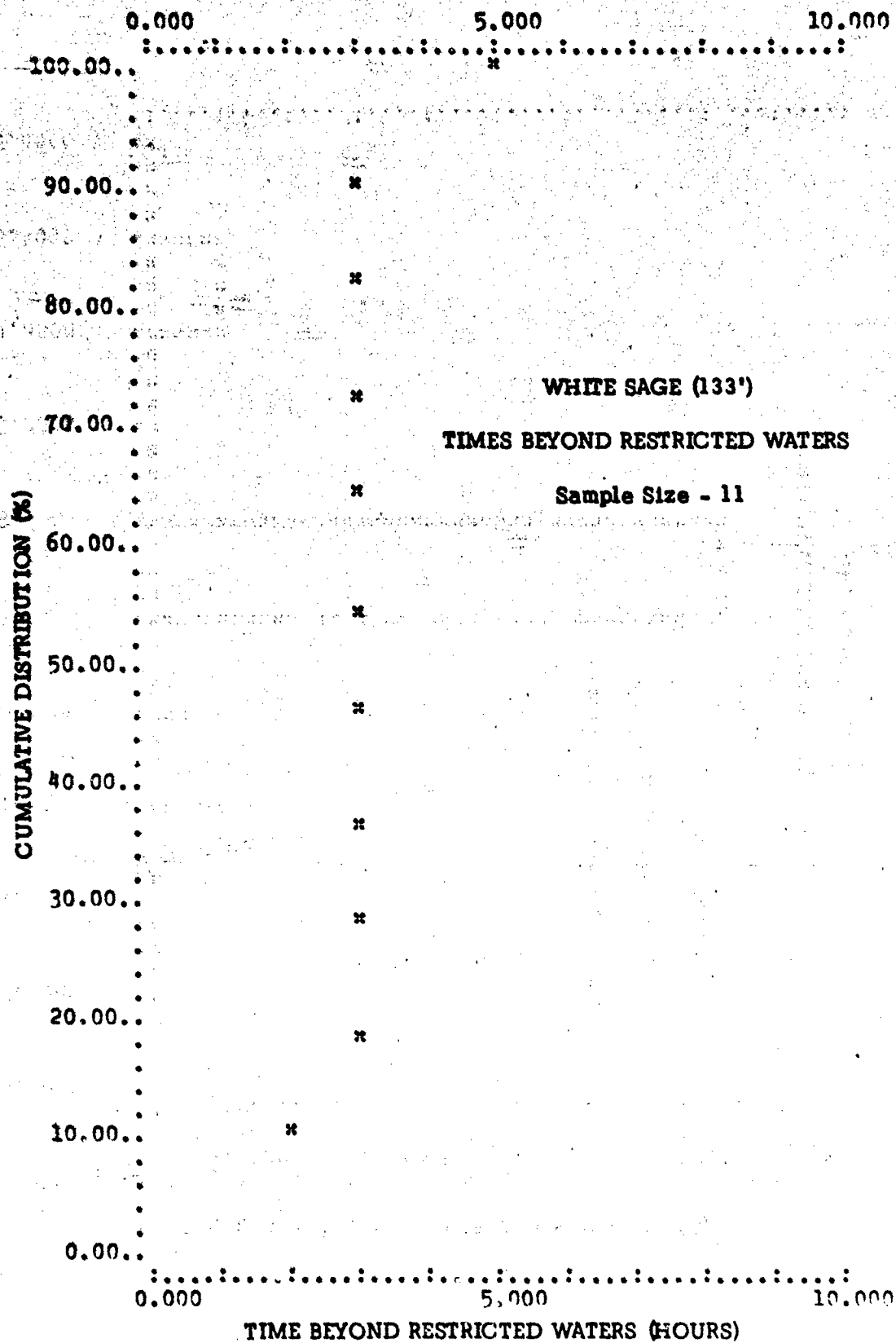
WHITE SAGE (133')
TIMES BEYOND RESTRICTED WATERS

Sample Size - 11

Mean - 3.0 Hours

Standard Deviation - 0.7 Hours





DETAILED VESSEL MISSION PROFILE DATA

Vessel WHITE SAGE (1331)

AUGUST 1974

Sheet 1 of 10

DATE Month <u>8</u> Year <u>74</u>	DOCKINGS				HOURS IN HOME PORT	HOURS IN NON- HOME PORT	TOTAL HOURS UNDER- WAY	HOURS UNDER- WAY WITHIN 3-MILE LIMIT	NUMBER OF 3-MILE CROSSINGS	SORTIE CHARACTERISTICS (Estimated)			
	Home	Non-Home		TYPE						HOLDING TIME INTERVALS (Hour)		TIME INTERVALS BEYOND RESTRICTED WATERS (Hour)	
		Arrival	Departure							Arrival	Departure		MAX
8/1	x	x			18.0		6.0	6.0	0	I	6.0		
8/2-8/4*					72.0								
8/5		x	x			14.0	10.0	10.0	0	II a=3 b=2	65.5	22.0, 12.5	
8/6				x		10.5	13.5	13.5	0				3.0, 3.0
8/7			x	x		14.0	10.0	7.0(1)	2				
8/8			x	x		16.0	8.0	5.0(1)	2				
8/9	x				14.0		10.0	10.0	0				
8/10-8/13*					96.0								
8/14	x	x			19.0		5.0	5.0	0	I	5.0		
8/15-8/19*					120.0								
8/20	x	x			18.0		6.0	6.0	0	I	6.0		
8/21*					24.0								
8/22	x	x			19.0		5.0	5.0	0	I	5.0		
8/23	x	x			10.0		14.0	11.0(1)	2	II b=1	5.5	5.5	
8/24-8/27*					96.0							3.0	
8/28	x	x			15.0		9.0	9.0	0	I	9.0		
8/29	x	x			14.0		10.0	10.0	0	I	10.0		

* Bravo Status (1) Underway time in 3-mile limit split in half.

Vessel
WHITE SAGE (133')

AUGUST 1974

Sheet 2 of 10

[illegible]

*** Bravo Status**

Vessel WHITE SAGE (1337)

OCTOBER 1974

Sheet 3 of 10

[illegible]

*** Bravo Status**

(1) Underway time in 3-mile limit split in half.

(2) Refurbishment- (Replace boiler) - Use Yard Sewage System.

Vessel WHITE SAGE 11337

DECEMBER 1974

Sheet 4 of 10

[illegible]

* Bravo Status
* Charlie Status

FEBRUARY 1975

Vessel WHITE SAGE (1337)

Sheet 5 of 10

[illegible]

*** Bravc Status**

(1) Underway time in 3-mile limit split in half.

Vessel **WHITE SAGE (1337)**

APRIL 1975

Sheet 6 of 10

[illegible]

(11) Underway time in 3-mile limit split in half.

* Bravo Status
Charlie Status

DETAILED VESSEL MISSION PROFILE DATA

Vessel WHITE SAGE (133')

MAY 1975

Sheet 7 of 10

DATE Month <u>5</u> Year <u>75</u>	DOCKINGS				HOURS IN HOME PORT	HOURS IN NON- HOME PORT	TOTAL HOURS UNDER- WAY	HOURS UNDER- WAY WITHIN 3-MILE LIMIT	NUMBER OF 3-MILE CROSSINGS	SORTIE CHARACTERISTICS (Estimated)			
	Home		Non-Home							TYPE	HOLDING TIME INTERVALS (Hours)		TIME INTERVALS BEYOND RESTRICTED WATERS (Hours)
	Arrival	Departure	Arrival	Departure							MAX	OTHERS	
5/1	x	x			22.5		1.5	1.5	0	I	1.5		
5/2-5/5*					96.0								
5/6	x	x			18.0		6.0	6.0	0	I	6.0		
5/7	x	x			16.0		8.0	8.0	0	I	8.0		
5/8-5/12*					120.0								
5/13	x	x			16.0		8.0	8.0	0	I	8.0		
5/14	x	x			20.0		4.0	4.0	0	I	4.0		
5/15-5/18					96.0								
5/19	x	x			18.0		6.0	6.0	0	I	6.0		
5/20	x	x			13.0		11.0	11.0	0	I	11.0		
5/21	x	x			17.0		7.0	7.0	0	I	7.0		
5/22-5/27*					144.0								
5/28	x	x			18.0		6.0	6.0	0	I	6.0		
5/28-5/31*					72.0								

* Bravo Status

DETAILED VESSEL MISSION PROFILE DATA

Vessel WHITE SAGE (133')

JUNE 1975

Sheet 8 of 10

DATE Month <u>6</u> Year <u>75</u>	DOCKINGS				HOURS IN HOME PORT	HOURS IN NON- HOME PORT	TOTAL HOURS UNDER- WAY	HOURS UNDER- WAY WITHIN 3-MILE LIMIT	NUMBER OF 3-MILE CROSSINGS	SORTIE CHARACTERISTICS (Estimated)			
	Arrival	Departure	Non-Home	Departure						TYPE	HOLDING TIME INTERVALS (Hours)		TIME INTERVALS BEYOND RESTRICTED WATERS (Hours)
											MAX	OTHERS	
6/1*				24.0									
6/2	x	x			15.0		9.0	9.0	0	I	9.0		
6/3	x	x			16.0		8.0	8.0	0	I	8.0		
6/4	x	x			19.0		5.0	5.0	0	I	5.0		
6/5-6/7*					72.0								
6/8	x	x			20.0		4.0	4.0	0	I	4.0		
6/9*					24.0								
6/10	x	x			17.0		7.0	7.0	0	I	7.0		
6/11	x	x			17.0		7.0	7.0	0	I	7.0		
6/12-6/16*					120.0								
6/17	x	x			16.0		8.0	8.0	0	I	8.0		
6/18	x	x			18.0		6.0	6.0	0	I	6.0		
6/19-6/22*					96.0								
6/23	x	x			20.0		4.0	4.0	0	I	4.0		
6/24	x	x			19.0		5.0	5.0	0	I	5.0		
6/25	x	x			16.0		8.0	8.0	0	I	8.0		
6/26	x	x			15.0		9.0	9.0	0	I	9.0		

* Bravo Status

Vessel WHITE SAGE (1331)

JUNE 1975

Sheet 9 of 10

[illegible]

* Bravo Status
Charlie Status

Vessel WHITE SAGE (133)

Sheet 10 of 10

* Bravo Status
Charlie Status

DETAILED SORTIE CHARACTERISTICS (Estimated)

Vessel WHITE SAGE (133')

Sheet 1 of 4

<p>8/1/74</p> <p>3 Mile</p> <p>HP 6.0</p> <p>HP</p>	<p>8/29/74</p> <p>3 Mile</p> <p>HP 10.0</p> <p>HP</p>
<p>8/5/74-8/9/74</p> <p>3 Mile</p> <p>HP 10.0</p> <p>NHP 14.0</p> <p>10.5</p> <p>13.5</p> <p>14.0</p> <p>3.5</p> <p>3.0</p> <p>3.5</p> <p>16.0</p> <p>2.5</p> <p>3.0</p> <p>HP 2.5 12.5 10.0</p>	<p>8/30/74</p> <p>3 Mile</p> <p>HP 4.0</p> <p>HP</p>
<p>8/14/74</p> <p>3 Mile</p> <p>HP 5.0</p> <p>HP</p>	<p>10/1/74</p> <p>3 Mile</p> <p>HP 2.5 3.0</p> <p>HP 2.5</p>
<p>8/20/74</p> <p>3 Mile</p> <p>HP 6.0</p> <p>HP</p>	<p>10/8/74</p> <p>3 Mile</p> <p>HP 8.0</p> <p>HP</p>
<p>8/22/74</p> <p>3 Mile</p> <p>HP 5.0</p> <p>HP</p>	<p>10/9/74</p> <p>3 Mile</p> <p>HP 10.0</p> <p>HP</p>
<p>8/23/74</p> <p>3 Mile</p> <p>HP 5.5 3.0</p> <p>HP 5.5</p>	<p>10/17/74</p> <p>3 Mile</p> <p>HP 6.0</p> <p>HP</p>
<p>8/28/74</p> <p>3 Mile</p> <p>HP 9.0</p> <p>HP</p>	<p>10/22/74 - 10/31/74</p> <p>3 Mile 3 Mile Yard</p> <p>HP 2.75 3.0 2.75 216.0</p>
	<p>12/5/74</p> <p>3 Mile</p> <p>HP 2.0</p> <p>HP</p>

DETAILED SORTIE CHARACTERISTICS (Estimated)

Vessel WHITE SAGE (133')

Sheet 2 of 4

<p>12/10/74</p> <p>3 Mile</p> <p>HP 7.0</p>	<p>4/23/75</p> <p>3 Mile</p> <p>HP 9.0</p>
<p>12/11/74</p> <p>3 Mile</p> <p>HP 5.5</p>	<p>4/28/75-4/30/75</p> <p>3 Mile 3 Mile NHP</p> <p>HP 6.0 + 3.0 + 6.0 9.0 21.0</p> <p>HP 5.0 + 5.0 + 2.0 + 5.0 12.0</p>
<p>2/3/75-2/7/75</p> <p>3 Mile</p> <p>NHP</p> <p>HP 9.0 15.0 6.0 3.0 6.0 57.0 2.5 3.0</p> <p>HP 2.5</p>	<p>5/1/75</p> <p>3 Mile</p> <p>HP 1.5</p>
<p>2/13/75</p> <p>3 Mile</p> <p>HP 5.0</p>	<p>5/6/75</p> <p>3 Mile</p> <p>HP 6.0</p>
<p>2/20/75</p> <p>3 Mile</p> <p>HP 7.0</p>	<p>5/7/75</p> <p>3 Mile</p> <p>HP 8.0</p>
<p>2/28/75</p> <p>3 Mile</p> <p>HP 6.0</p>	<p>5/13/75</p> <p>3 Mile</p> <p>HP 8.0</p>
<p>4/21/75</p> <p>3 Mile</p> <p>HP 8.0</p>	<p>5/14/75</p> <p>3 Mile</p> <p>HP 4.0</p>
	<p>5/19/75</p> <p>3 Mile</p> <p>HP 6.0</p>

DETAILED SORTIE CHARACTERISTICS (Estimated)

Vessel WHITE SAGE (133')

Sheet 3 of 4

<p>5/20/75</p> <p>3 Mile</p> <p>HP 11.0</p> <p>HP</p>	<p>6/11/75</p> <p>3 Mile</p> <p>HP 7.0</p> <p>HP</p>
<p>5/21/75</p> <p>3 Mile</p> <p>HP 7.0</p> <p>HP</p>	<p>6/17/75</p> <p>3 Mile</p> <p>HP 8.0</p> <p>HP</p>
<p>5/28/75</p> <p>3 Mile</p> <p>HP 6.0</p> <p>HP</p>	<p>6/18/75</p> <p>3 Mile</p> <p>HP 6.0</p> <p>HP</p>
<p>6/2/75</p> <p>3 Mile</p> <p>HP 9.0</p> <p>HP</p>	<p>6/23</p> <p>3 Mile</p> <p>HP 4.0</p> <p>HP</p>
<p>6/3/75</p> <p>3 Mile</p> <p>HP 8.0</p> <p>HP</p>	<p>6/24/75</p> <p>3 Mile</p> <p>HP 5.0</p> <p>HP</p>
<p>6/4/75</p> <p>3 Mile</p> <p>HP 5.0</p> <p>HP</p>	<p>6/25/75</p> <p>3 Mile</p> <p>HP 8.0</p> <p>HP</p>
<p>6/8/75</p> <p>3 Mile</p> <p>HP 4.0</p> <p>HP</p>	<p>6/26/75</p> <p>3 Mile</p> <p>HP 9.0</p> <p>HP</p>
<p>6/10/75</p> <p>3 Mile</p> <p>HP 7.0</p> <p>HP</p>	<p>7/14/75 - 7/16/75</p> <p>3 Mile 3 Mile NHP</p> <p>HP 4.0 + 3.0 + 4.0 + 13.0 } 37.0</p> <p>HP 6.0 + 5.0 + 6.0 + 24.0 }</p>

DETAILED SORTIE CHARACTERISTICS (Estimated)

Vessel WHITE SAGE (133')

Sheet 4 of 4

7/21/75	3 Mile	HP 11.0	HP
7/22/75	3 Mile	HP 4.0	HP
7/23/75	3 Mile	HP 10.0	HP
7/24/75	3 Mile	HP 8.0	HP
7/28/75	3 Mile	HP 7.0	HP
7/29/75	3 Mile	HP 9.0	HP
7/30/75	3 Mile	HP 10.0	HP

POINT HERRON (82')

Vessel Characteristic	Data
Class	WPB - 92318 Point (82') C Class
Type	Patrol Boat (Small)
Crew Size	8
Home Port	Bay Shore, New York (Fire Island)
Mission Profile Data Source and Time Interval	From Summary Log 15 Months 5/1/73-7/31/74

SUMMARY OF MISSION PROFILE CHARACTERISTICS

Vessel POINT HERRON (82')

(One Year Average - based on 15 months
of data from May 1973-July 1974)

% of time in home port (7830.4 hours) -----	89.4
% of time in non-home port (91.6 hours) -----	1.0
% of time in yard* (480.0 hours) ⁽¹⁾ -----	5.5
% of time underway(358.0 hours) -----	4.1
% of time within 0-3 mile limit (70.5 hours) -----	0.8
% of time outside restricted waters (287.5 hours) -----	3.3
% of underway time within 0-3 mile limit -----	19.7
% of underway time outside restricted waters -----	80.0
Number of 3-mile crossings -----	92
Number of home port dockings -----	88
Number of non-home port dockings -----	4
Holding time (hours), i.e., time spent within 0-3 mile limit and/or in non-home port -----	162.0
% of time spent within 0-3 mile limit and/or in non-home port -----	1.8
Maximum holding time (hours), i.e., largest time interval within 0-3 mile limit and/or in non-home port) -----	99.0
Maximum continuous number of hours outside restricted waters -----	22.5

* Refurbishment

(1) Weighted average of 384 and 216 hours over 15-month period.
Weighted difference of 120 hours added to time in home port.

HOLDING TIMES

Vessel POINT HERRON (82')

1973												1974											
May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July									
2.4	0.5	0.5	1.0	0.5	0.5	1.0	0.5	2.0	0.5	1.0	0.5	0.5	0.5	0.5									
0.5	0.5	0.5	1.0	0.5	0.5	1.0	0.5		0.5		0.5	0.5	0.5	0.5									
2.4	0.5	0.5	0.5	0.5	0.5	1.0	0.5		0.5			3.0	0.5	0.5									
0.5	0.5	0.5	0.5	0.5	0.5	1.0	0.5		0.5			0.5	0.5	21.5									
	0.5	0.5	0.5	6.0		1.0	0.5					3.0	0.5	1.0									
	0.5	0.5	0.5	99.0		1.0	0.5					3.0	0.5	0.5									
	0.5	0.5	1.0	0.5			0.5					0.5	0.5	0.5									
	0.5	0.5	0.5	0.5			0.5					0.5	0.5	0.5									
	0.5	0.5	0.5	0.5			0.5					0.5	0.5	0.75									
	0.5	0.5	1.0	0.5			0.5					0.5	0.5	0.75									
	0.5	0.5	1.0	3.0			0.5					0.5	0.5	1.0									
	0.5	0.5	1.0																				
	0.5	0.5	0.5																				
	0.5	0.5	0.5																				
	0.5	0.5	0.5																				
	0.5	0.5	0.5																				

Month

Maximum holding times for sorties

All other sortie holding times

POINT HERRON (82')

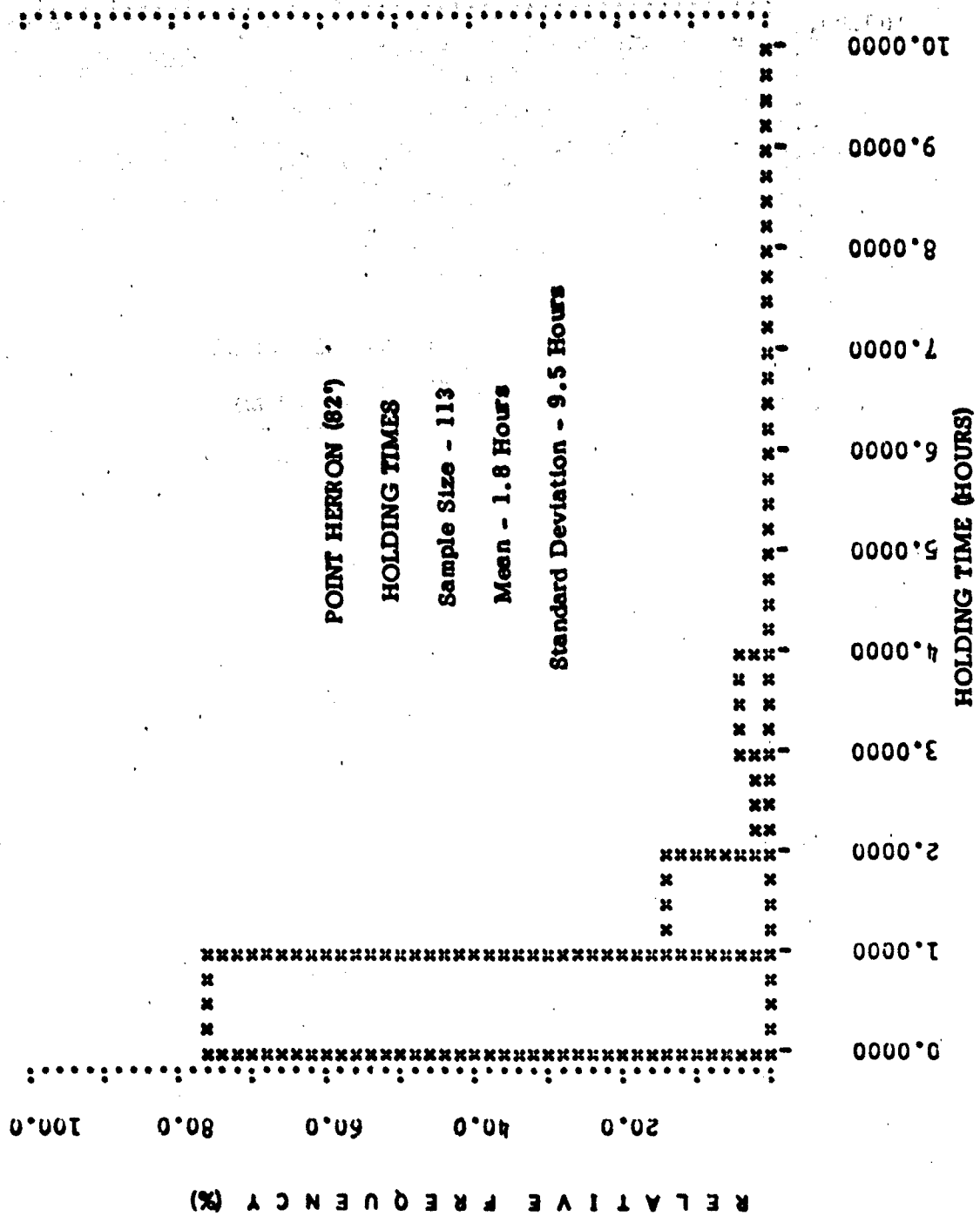
HOLDING TIMES

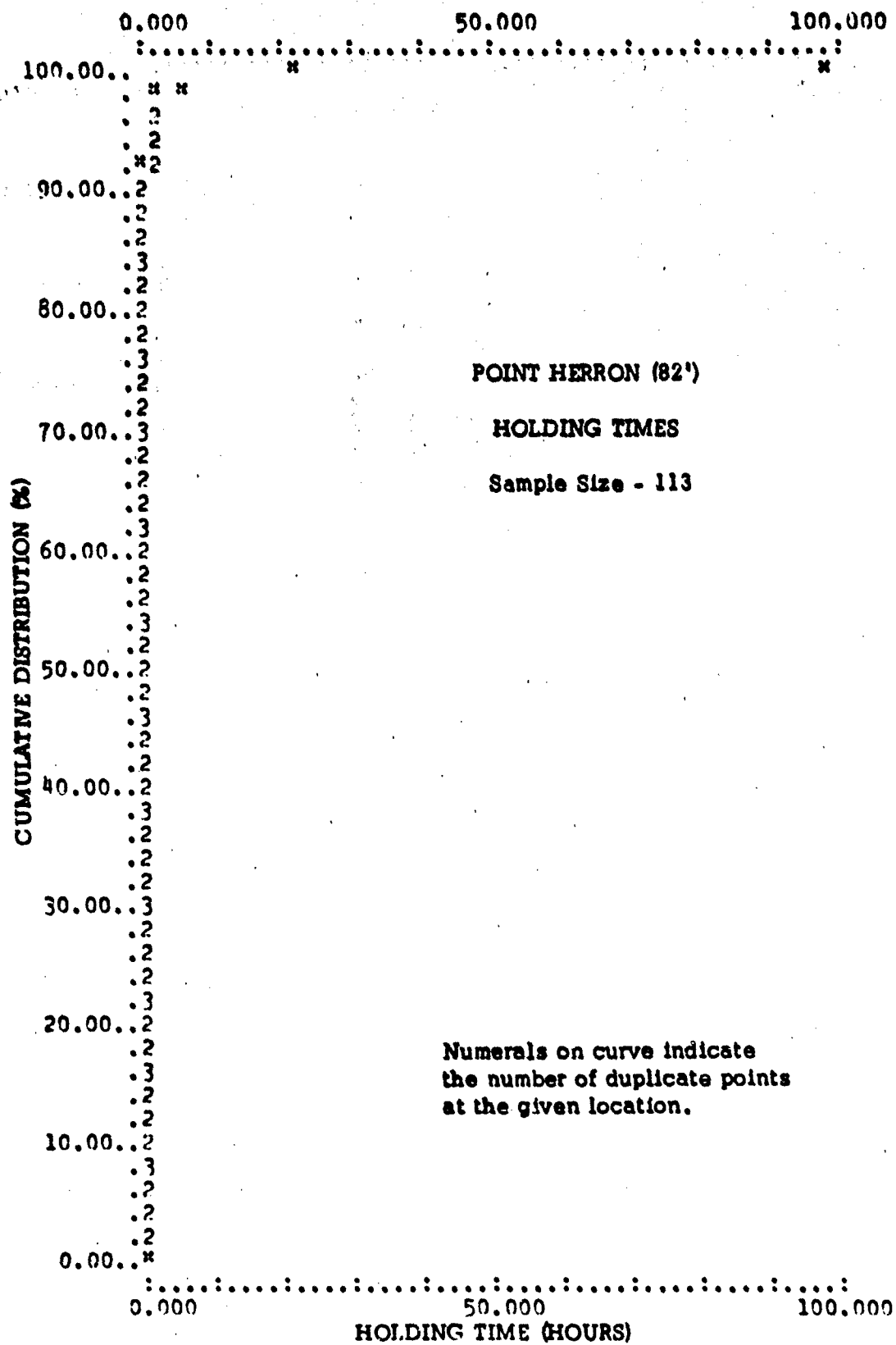
FREQUENCY TABLE

(1) CELL LOWER LIMIT -----	(2) FREQ -----	(3) REL FREQ -----	(4) CUM FREQ -----	(5) CUM REL FREQ -----
0.5000	85	75.22	85	75.22
0.7500	2	1.77	87	76.99
1.0000	16	14.16	103	91.15
2.0000	1	0.88	104	92.04
2.4000	2	1.77	106	93.81
3.0000	4	3.54	110	97.35
6.0000	1	0.88	111	98.23
21.5000	1	0.88	112	99.12
99.0000	1	0.88	113	100.00

NOTES:

- (1) Unique values of holding time durations (hours)
- (2) Count of the number of occurrences of holding times of indicated duration
- (3) % of all holding times of indicated duration
- (4) Cumulative count of number of holding times of indicated duration or less
- (5) Cumulative % of all holding times of indicated duration or less





POINT HERRON (82')

CONFIDENCE LIMITS ON MAXIMUM HOLDING TIME

LOWER LIMIT? 99.0001

100 % BELOW THE LOWER LIMIT

CONF	LEVEL	LOWER	UPPER
%	50	98.80	100.00
%	75	98.20	100.00
%	90	97.40	100.00
%	95	96.80	100.00
%	99	95.50	100.00

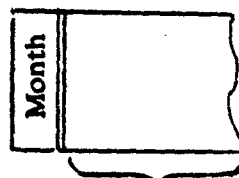
Sample Size - 113

Maximum Holding Time - 99 Hours

TIMES BEYOND RESTRICTED WATERS

Vessel POINT HERRON (82')

1973												1974			
May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	
3.2	10.0	13.5	4.0	10.0	2.0	7.0	3.0	--	8.0	--	5.0	6.0	5.0	6.0	
7.0	11.0	5.0	4.0	2.0	3.0	2.0	1.0		9.0			10.0	4.0	12.0	
	6.0	13.0	4.0	6.0		1.0	2.0					2.0	9.0	7.0	
	15.0	12.0	3.0	8.0			5.0					22.5	10.0	2.5	
		3.0	3.0	7.0										2.5	
		5.0	1.0											2.0	
		13.0	1.0												
		5.0	1.0												
			1.0												
			3.0												
			14.0												
			15.0												
			7.0												



Sortie times beyond
restricted waters

POINT HERRON (82')

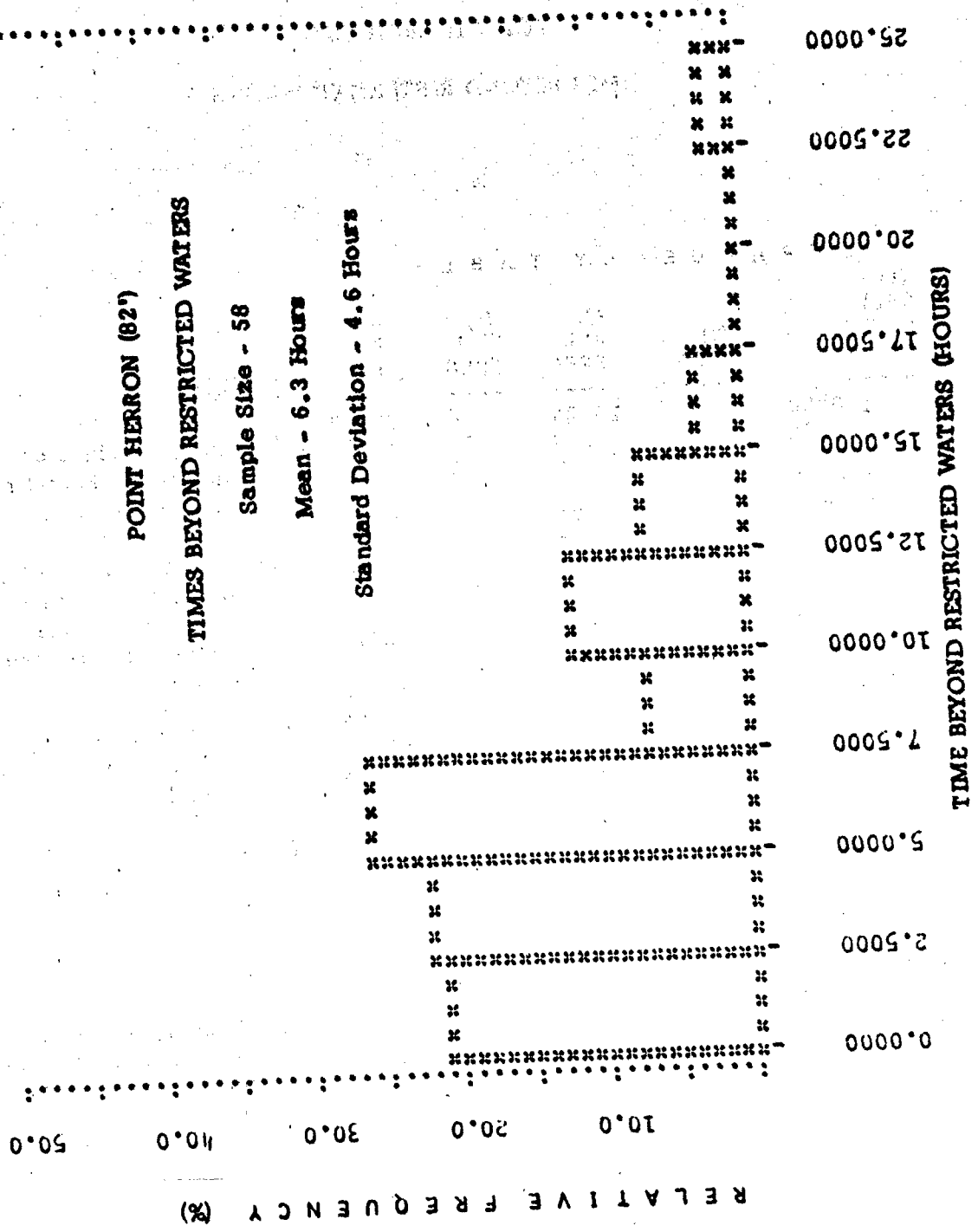
TIMES BEYOND RESTRICTED WATERS

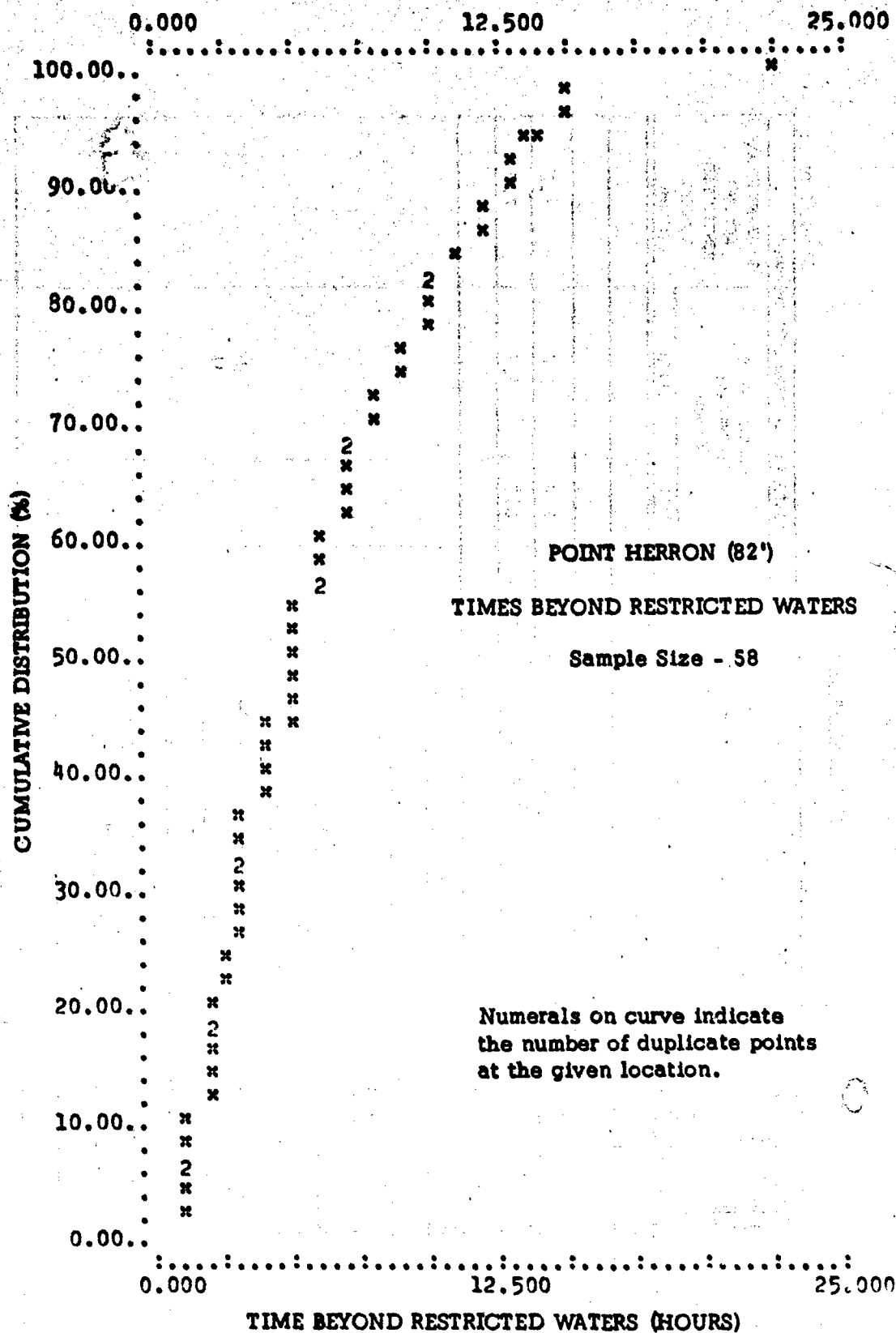
F R E Q U E N C Y T A B L E

(1) CELL LOWER LIMIT	(2) FREQ	(3) REL FREQ	(4) CUM FREQ	(5) CUM REL FREQ
-----	-----	-----	-----	-----
1.0000	6	10.34	6	10.34
2.0000	6	10.34	12	20.69
2.5000	2	3.45	14	24.14
3.0000	6	10.34	20	34.48
3.2000	1	1.72	21	36.21
4.0000	4	6.90	25	43.10
5.0000	6	10.34	31	53.45
6.0000	4	6.90	35	60.34
7.0000	5	9.62	40	68.97
8.0000	2	3.45	42	72.41
9.0000	2	3.45	44	75.86
10.0000	4	6.90	48	82.76
11.0000	1	1.72	49	84.48
12.0000	2	3.45	51	87.93
13.0000	2	3.45	53	91.38
13.5000	1	1.72	54	93.10
14.0000	1	1.72	55	94.83
15.0000	2	3.45	57	98.28
22.5000	1	1.72	58	100.00

NOTES:

- (1) Unique values of time durations (hours) beyond restricted waters
- (2) Count of the number of occurrences of time intervals beyond restricted waters of indicated duration
- (3) % of all time intervals beyond restricted waters of indicated duration
- (4) Cumulative count of number of time intervals beyond restricted waters of indicated duration or less
- (5) Cumulative % of time intervals beyond restricted waters of indicated duration or less





Vessel POINT HERRON (82-)

MAY 1973

Sheet 1 of 15

[illegible]

* Bravo Status
Charlie Status

(1) Underway time within 3-mile limit split in half.

Vessel POINT HERRON (82)

JUNE 1973

Sheet 2 of 13

[illegible]

* Bravo Status
Charlie Status

(1) Underway time within 3-mile limit split in half.

DETAILED VESSEL MISSION PROFILE DATA

Vessel POINT HERRON (E2.1)

JULY 1973

Sheet 3 of 15

Sheet 3 of 13														
DATE Month <u>7</u> Year <u>73</u>		DOCKINGS				HOURS IN HOME PORT	HOURS IN NON- HOME PORT	TOTAL HOURS UNDER- WAY	HOURS UNDER- WAY WITHIN 3-MILE LIMIT	NUMBER OF 3-MILE CROSSINGS	SORTIE CHARACTERISTICS (Estimated)			
		Home		Non-Home							TYPE	HOLDING TIME INTERVALS (Hours)		TIME INTERVALS BEYOND RESTRICTED WATERS (Hours)
		Arrival	Departure	Arrival	Departure							MAX	OTHERS	
7/1		x	x			9.5		14.5	1.0 ⁽¹⁾	2	II b=1	0.5	0.5	13.5
7/2		x	x			18.0		6.0	1.0 ⁽¹⁾	2	II b=1	0.5	0.5	5.0
7/3-7/6*						96.0								
7/7		x	x			10.0		14.0	1.0 ⁽¹⁾	2	II b=1	0.5	0.5	13.0
7/8		x	x			11.0		13.0	1.0 ⁽¹⁾	2	II b=1	0.5	0.5	12.0
7/9-7/16*						192.0								
7/17		x	x			20.0		4.0	1.0 ⁽¹⁾	2	II b=1	0.5	0.5	3.0
7/18		x	x			18.0		6.0	1.0 ⁽¹⁾	2	II b=1	0.5	0.5	5.0
7/19-7/21*						72.0								
7/22		x	x			10.0		14.0	1.0 ⁽¹⁾	2	II b=1	0.5	0.5	13.0
7/23-7/29*						168.0								
7/30		x	x			18.0		6.0	1.0 ⁽¹⁾	2	II b=1	0.5	0.5	5.0
7/31*						24.0								

* Bravo Status (1) Underway time within 3-mile limit split in half.

DETAILED VESSEL MISSION PROFILE DATA

Vessel POINT HERRON(82')

AUGUST 1973

Sheet 4 of 15

DATE Month <u>8</u> Year <u>73</u>	DOCKINGS				HOURS IN HOME PORT	HOURS IN NON- HOME PORT	TOTAL HOURS UNDER- WAY	HOURS UNDER- WAY WITHIN 3-MILE LIMIT	NUMBER OF 3-MILE CROSSINGS	SORTIE CHARACTERISTICS (Estimated)			
	Home Arrival	Home Departure	Non-Home Arrival	Non-Home Departure						TYPE	HOLDING TIME INTERVALS (Hour)		TIME INTERVALS BEYOND RESTRICTED WATERS (Hour)
											MAX	OTHERS	
8/1-8/3*					72.0					II b=3			
8/4	x	x			9.0		15.0	3.0	6	II b=2	1.0	1.0 0.5 0.5	4.0 4.0 4.0
8/5	x	x			8.0		16.0	6.0	12	II b=6 C=5	1.0	1.0 1.0 1.0 1.0 0.5 0.5	3.0 3.0 1.0 1.0 1.0 1.0
8/6-8/14*					216.0								
8/15	x	x			20.0		4.0	1.0 (1)	2	II b=1	0.5	0.5	3.0
8/16-8/17*					48.0								
8/18	x	x			9.0		15.0	1.0 (1)	2	II b=1	0.5	0.5	14.0
8/19	x	x			8.0		16.0	1.0 (1)	2	II b=1	0.5	0.5	15.0
8/20-8/29*					240.0								
8/30	x	x			16.0		8.0	1.0 (1)	2	II b=1	0.5	0.5	7.0
8/31*					24.0								
				</									

* Bravo Status

(1) Underway time within 3-mile limit split in half.

Vessel **POINT HERRON (82")**

SEPTEMBER 1973

Sheet 5 of 15

[illegible]

*** Bravo Status**

(1) Underway time within 3-mile limit split in half.

(2) Philadelphia

Vessel POINT HERRON (82)

OCTOBER 1973

Sheet 6 of 15

[illegible]

BRADY

Charlie Status

(1) Underway time within 3-mile limit split in half.

Vessel POINT HERRON (#2)

NOVEMBER 1973

Sheet 7 of 15

[illegible]

Bravo Status

Charlie Status

(1) Underway time within 3-mile limit split in half.

(2) Yard for Refurbishment-Use Municipal Sewage Facility

Vessel POINT HERRON (82)

Sheet 8 of 15

(1) Underway time within 3-mile limit split in half

*** Bravo Status**

Sheet 9 of 15

*** Bravo Status**

Sheet 10 of 15.

(1) Underway time within 3-mile limit split in half.

185

Sheet 11 of 15

Vessel POINT HERRON (827)

MARCH 1974

[illegible]

*** Bravo Status**

Sheet 12 of 15

Vessel: POINT HERRON (821)

(1) Underway time within 3-mle limit split in half.

*** Bravo Status**

Sheet 13 of 15

Vessel POINT HERRON (821)

MAY 1974

[illegible]

(1) Underway time within 3-mile limit split in half.

* **Bravo Status**

Vessel Point Herron (P2')

JUNE 1974

Sheet 14 of 15

[illegible]

*** Bravo Status**

(1) Underway time within 3-mile limit split in half.

Vessel POINT HERRON (P2')

Sheet 15 of 15

* Bravo Status (1) Underway time within 3-mile limit split in half.
Charlie Status (2) Refurbishment in Yard-Use Municipal Sewage System.

DETAILED SORTIE CHARACTERISTICS (Estimated)

Vessel POINT HERRON (82')

Sheet 1 of 4

<p>5/26/73</p> <p>3 Mile</p> <p>HP 2.4 3.2</p> <p>HP 2.4 </p>	<p>7/7/73</p> <p>3 Mile</p> <p>HP -0.5 13.0</p> <p>HP 0.5 </p>
<p>5/27/73</p> <p>3 Mile</p> <p>HP -0.5 7.0</p> <p>HP 0.5 </p>	<p>7/8/73</p> <p>3 Mile</p> <p>HP 0.5 12.0</p> <p>HP 0.5 </p>
<p>6/2/73</p> <p>3 Mile</p> <p>HP .5 10.0</p> <p>HP .5 </p>	<p>7/17/73</p> <p>3 Mile</p> <p>HP 0.5 3.0</p> <p>HP 0.5 </p>
<p>6/3/73</p> <p>3 Mile</p> <p>HP .5 11.0</p> <p>HP .5 </p>	<p>7/18/73</p> <p>3 Mile</p> <p>HP 0.5 5.0</p> <p>HP 0.5 </p>
<p>6/5/73</p> <p>3 Mile</p> <p>HP .5 6.0</p> <p>HP .5 </p>	<p>7/22/73</p> <p>3 Mile</p> <p>HP 0.5 13.0</p> <p>HP 0.5 </p>
<p>6/6/73-6/7/73</p> <p>3 Mile</p> <p>HP -0.5 2.5 } 15.0</p> <p>HP 0.5 12.5 }</p>	<p>7/30/73</p> <p>3 Mile</p> <p>HP 0.5 5.0</p> <p>HP 0.5 </p>
<p>7/1/73</p> <p>3 Mile</p> <p>HP 0.5 13.5</p> <p>HP 0.5 </p>	<p>8/4/73</p> <p>3 Mile</p> <p>HP 0.5 4.0</p> <p>1.0 4.0</p> <p>1.0 4.0</p> <p>HP 0.5 4.0</p>
<p>7/2/73</p> <p>3 Mile</p> <p>HP 0.5 5.0</p> <p>HP 0.5 </p>	

DETAILED SORTIE CHARACTERISTICS (Estimated)

Vessel POINT HERRON (82')

Sheet 2 of 4

<p>8/5/73</p> <p>3 Mile</p>	<p>9/20/73</p> <p>3 Mile</p>
<p>8/15/73</p> <p>3 Mile</p>	<p>9/22/73</p> <p>3 Mile</p>
<p>8/18/73</p> <p>3 Mile</p>	<p>9/23/73</p> <p>3 Mile</p>
<p>8/19/73</p> <p>3 Mile</p>	<p>9/24/73-9/27/73</p> <p>NHP 3 Mile</p>
<p>6/30/73</p> <p>3 Mile</p>	<p>10/5/73</p> <p>3 Mile</p>
<p>9/3/73</p> <p>3 Mile</p>	<p>10/24/73</p> <p>3 Mile</p>
<p>9/6/73</p> <p>3 Mile</p>	<p>11/5/73</p> <p>3 Mile</p>
	<p>11/12/73</p> <p>3 Mile</p>

DETAILED SORTIE CHARACTERISTICS (Estimated)

Vessel POINT HERRON (82')

Page 3 of 4

<p>11/13/73-11/28/73</p>	<p>2/18/74</p>
<p>11/29/73</p>	<p>3/17/74</p>
<p>12/2/73</p>	<p>4/11/74</p>
<p>12/13/73</p>	<p>5/15/74</p>
<p>12/16/73</p>	<p>5/19/74</p>
<p>12/17/73</p>	<p>5/22/74</p>
<p>3/8/74</p>	<p>5/27/74</p>
<p>2/12/74</p>	<p>5/30/74</p>

DETAILED SORTIE CHARACTERISTICS (Estimated)

Vessel POINT HERRON (82')

Page 4 of 4

<p>5/31/74-6/1/74</p> <p>3 Mile</p> <p>HP ----- 3.0 ----- 2.0 } 22.5</p> <p>HP ----- 0.5 ----- 20.5 }</p>	<p>7/15/74-7/16/74</p> <p>3 Mile 3 Mile NHP</p> <p>HP ----- 0.75 ----- 2.5 ----- 0.75 ----- 20.0</p> <p>HP ----- 0.75 ----- 2.5 ----- 0.75 ----- </p>
<p>6/13/74</p> <p>3 Mile</p> <p>HP ----- 0.5 ----- 5.0</p> <p>HP ----- 0.5 ----- </p>	<p>7/22/74</p> <p>3 Mile</p> <p>HP ----- 1.0 ----- 2.0</p> <p>HP ----- 1.0 ----- </p>
<p>6/15/74</p> <p>3 Mile</p> <p>HP ----- 0.5 ----- 4.0</p> <p>HP ----- 0.5 ----- </p>	<p>7/23/74-7/31/74</p> <p>HP ----- Yard ----- 215.0</p>
<p>6/29/74</p> <p>HP ----- 0.5 ----- 9.0</p> <p>HP ----- 0.5 ----- </p>	
<p>6/30/74</p> <p>3 Mile</p> <p>HP ----- 0.5 ----- 10.0</p> <p>HP ----- 0.5 ----- </p>	
<p>7/11/74</p> <p>3 Mile</p> <p>HP ----- 0.5 ----- 6.0</p> <p>HP ----- 0.5 ----- </p>	
<p>7/13/74</p> <p>3 Mile</p> <p>HP ----- 0.5 ----- 12.0</p> <p>HP ----- 0.5 ----- </p>	
<p>7/14/74</p> <p>3 Mile</p> <p>HP ----- 0.5 ----- 7.0</p> <p>HP ----- 0.5 ----- </p>	